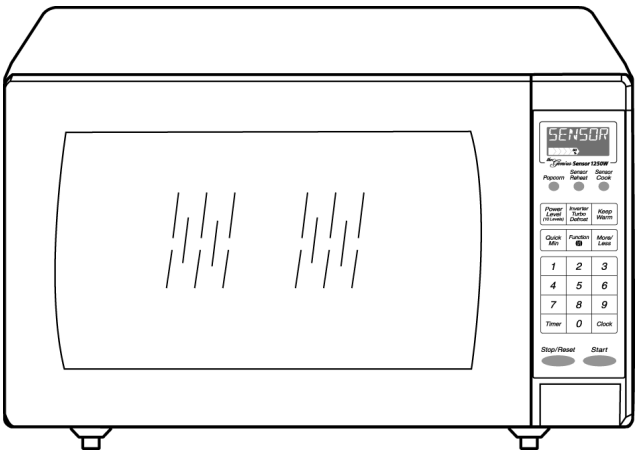
ORDER NO.PHAMOS0701005A1
E1

Service Manual

Microwave Oven

NN-SD997S
NN-SD987S
NN-SD967S
NN-SN977S
NN-SN957S
NN-SN947S



APH(USA)
CPH(CANADA)

Specifications:

Model: / Specifications:	SD997S APH	SD997S CPH	SD987S APH SD987SB APH	SD967S APH	SN977S APH	SN957S APH	SN947S APH
Power Source:	120V AC Single Phase, 60Hz						
Power Requirement:	1460W	1460W	1460W	1460W	1460W	1460W	1460W
Output:	1250W	1200W	1250W	1250W	1250W	1250W	1250W
Microwave Frequency:	2450MHz						
Timer:	30 min. / Stage (HIGH Power) ~ 5 Stage Maximum 90 min. 00 sec or 99 min. 99 sec / Stage (Other Power Levels) ~ 5 Stage Maximum						
Outside Dimensions: (W) X (D) X (H)	23 7/8"(W) X 20"(D) X 14"(H) 606mm(W) x 509mm(D) x 356mm(H)			23 7/8"(W) X 19 7/16"(D) X 14"(H) 606mm(W) x 493mm(D) x 356mm(H)			
Oven Cavity Dimensions:	18 7/16"(W) X 18 1/2"(D) X 10 15/16"(H) 469mm(W) x 470mm(D) x 278mm(H)						
Oven Cavity Dimensions:	2.2 cu. ft.						
Weight:	Approx. 37 lbs./16.7 kg						
PbF	This product with PbF						
Specifications subject to change without notice.							

Panasonic®

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

WARNING

1. This product should be serviced only by trained, qualified personnel.
2. Though this product has been manufactured in compliance with:
   "Federal Performance Standard 21 CFR Subchapter J"(D.H.H.S): U.S.A. models
   or "Radiation Emitting Devices Act"(Health and Welfare Canada): Canadian models
   it is very important all repairs should be made in accordance with procedures described in this manual to avoid being exposed to excessive microwave radiation.
3. Check for radiation leakage before and after every servicing according to the "procedure for measuring radiation leakage."
4. If the unit cannot be repaired on site, advise the customer not to use until unit is repaired.
5. Any serviceman who learns of any accident pertaining to microwave radiation leakage including the oven operating with open door should immediately notify the appropriate address listed below and Center for Devices and Radiological Health, DHHS.

IN U.S.A. (PSTC)	Panasonic Services Company 50 Meadowland Parkway, Secaucus, New Jersey 07094 Attention: Technical Service Division. (201)348-7000	IN PUERTO RICO (PSC)	PSC San Gabriel Industrial Park 65th Infantry Ave. Km.9.5 Carolina, Puerto Rico 00985 (787)750-4300
		IN CANADA (PCI)	Panasonic Canada Inc. 5770 Ambler Drive, Mississauga, Ontario, L4W2T3 (905)624-5010

6. There are special components used in the microwave oven which are important for safety. These parts are marked with a ⚠ on the replacement parts list. It is essential that these critical parts should be replaced only with the manufacture's specified parts to prevent microwave leakage, shock, fire, or other hazards. Do not modify the orginal design.

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(A) Do not operate or allow the oven to be operated with the door open.
(B) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
  (1) Interlock operation
  (2) Proper door closing
  (3) Seal and sealing surfaces (arcing, wear, and other damage)
  (4) Damage to or loosening of hinges and latches.
  (5) Evidence of dropping or abuse
(C) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, waveguide or transmission line, and cavity for proper alignment, integrity and connections.
(D) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
(E) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

CAUTION

About lead free solder (PbF)

Distinction of PbF PCB: PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

Caution:
- Pb free solder has a higher melting point than standard solder; Typically the melting point is 30 - 40˚C higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 370 ± 10˚C.
- Pb free solder will tend to splash when heated too high (about 600˚C).

DANGER OF HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LIVE) OF THE INVERTER POWER SUPPLY (U)

INVERTER WARNING

This Inverter board looks like a regular PCB. However, this PCB drives the magnetron tube with extremely high voltage and high current. NEW H.V.

IT HAS:

1. **Very high voltage and high current circuits.**
   It functions the same as the high voltage transformer and high voltage capacitor in ordinary microwave ovens.
2. **Aluminum heat sink that is energized with very high voltage and high heat energy.**
3. **Very high voltage which may remain in circuitry even when oven is off. High voltage charge may remain in the capacitors on the board.**

DO NOT:

* 1. **Do not touch circuitry because it has very hot (high voltage) circuitry. Even when replacing board, extreme care should be taken to avoid possible electric shock hazards. High voltage charge may remain in circuits.**

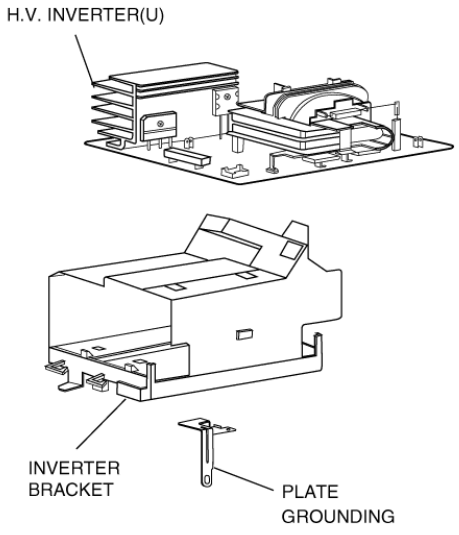
* 2. **Do not touch aluminum heat sink because it is energized with very high voltage and is also very hot in high heat energy.**

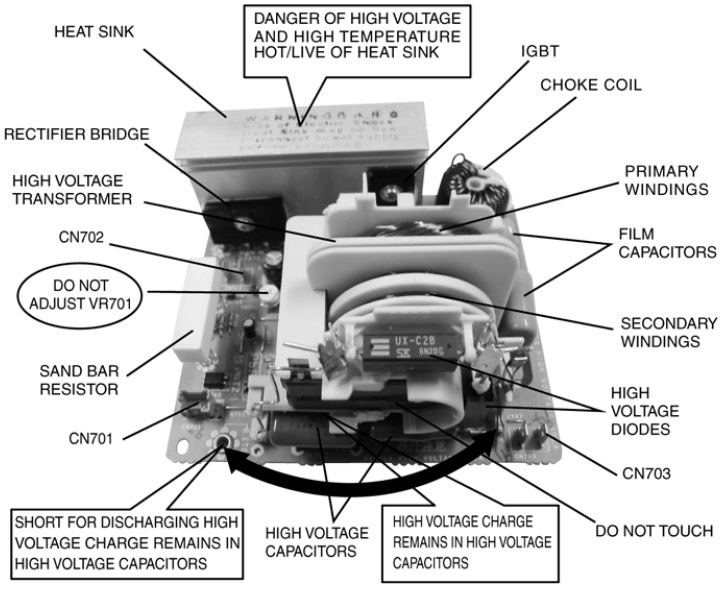
* 3. **Do not try to adjust or tamper with preset control on the Inverter board because it is very dangerous to adjust without proper test equipment.**

* 4. **Do not test oven while Inverter grounding plate or screws are loose. It is very dangerous to operate H.V. Inverter Circuit (U) with loose mounting screws or if improperly grounded.**

* 5. **For USA only:**
Do not try to repair Inverter PCB because it is very dangerous to repair. Replace as a complete High Voltage Inverter Circuit unit and return fully re-packed in original shipping box and shipping materials.

INVERTER POWER SUPPLY





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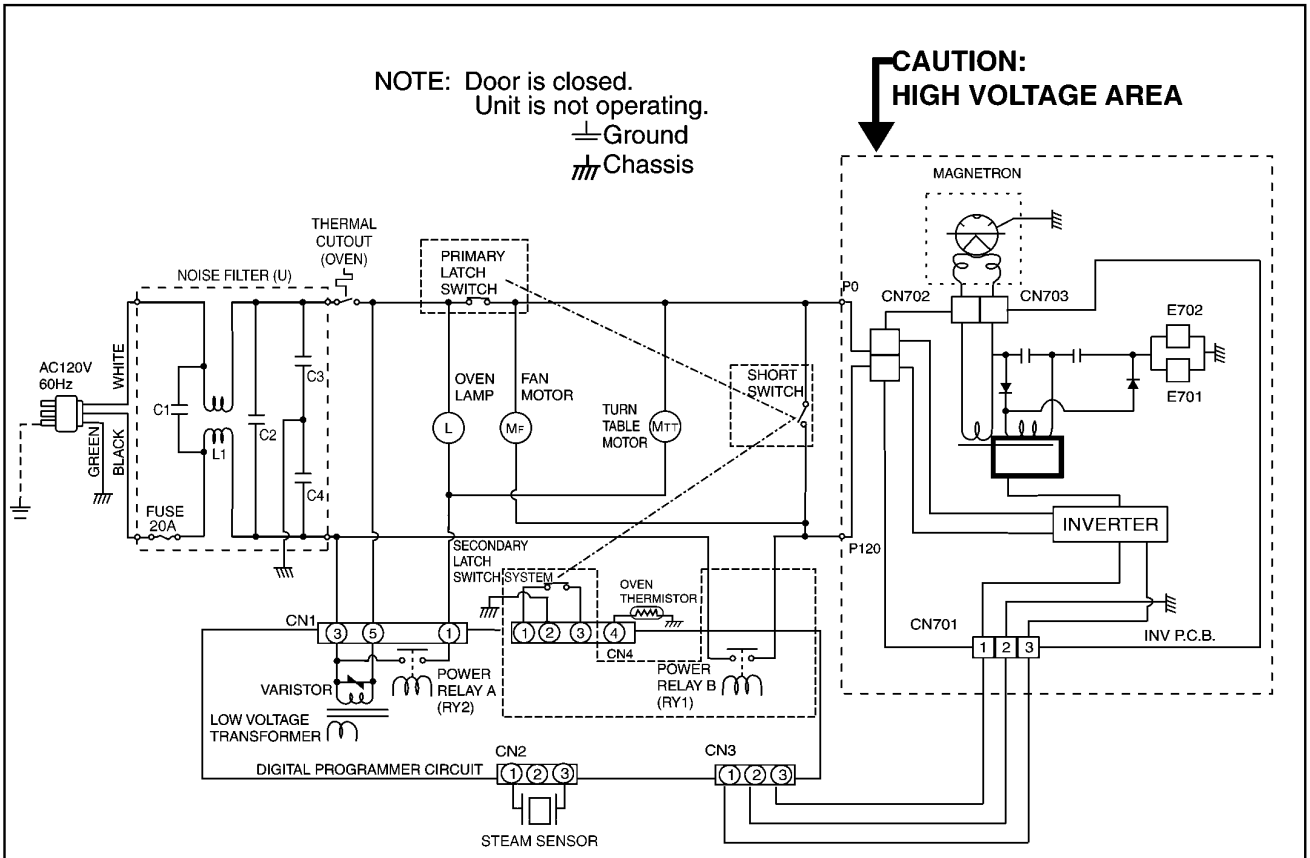
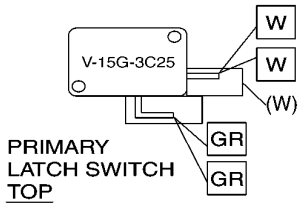
1 SCHEMATIC DIAGRAM

1.1. APH

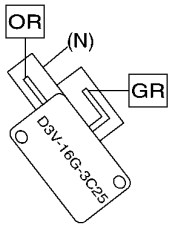


WIRING DIAGRAM (APH)

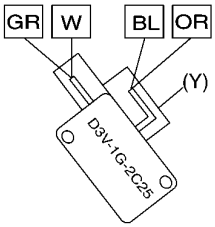
NOTE: * When replacing, check the lead wire color as shown.
***Colors shown by ( ) indicate colors of lead wire connector housing.**



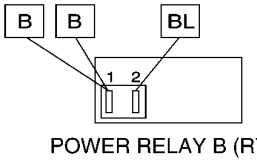
PRIMARY LATCH SWITCH TOP



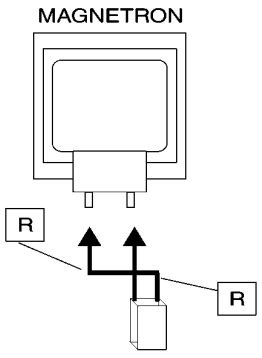
SECONDARY LATCH SWITCH BOTTOM (OUTSIDE)

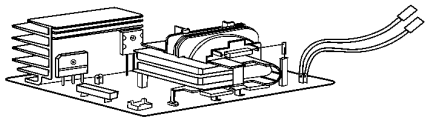


SHORT LATCH SWITCH BOTTOM (INSIDE)



POWER RELAY B (RY1)

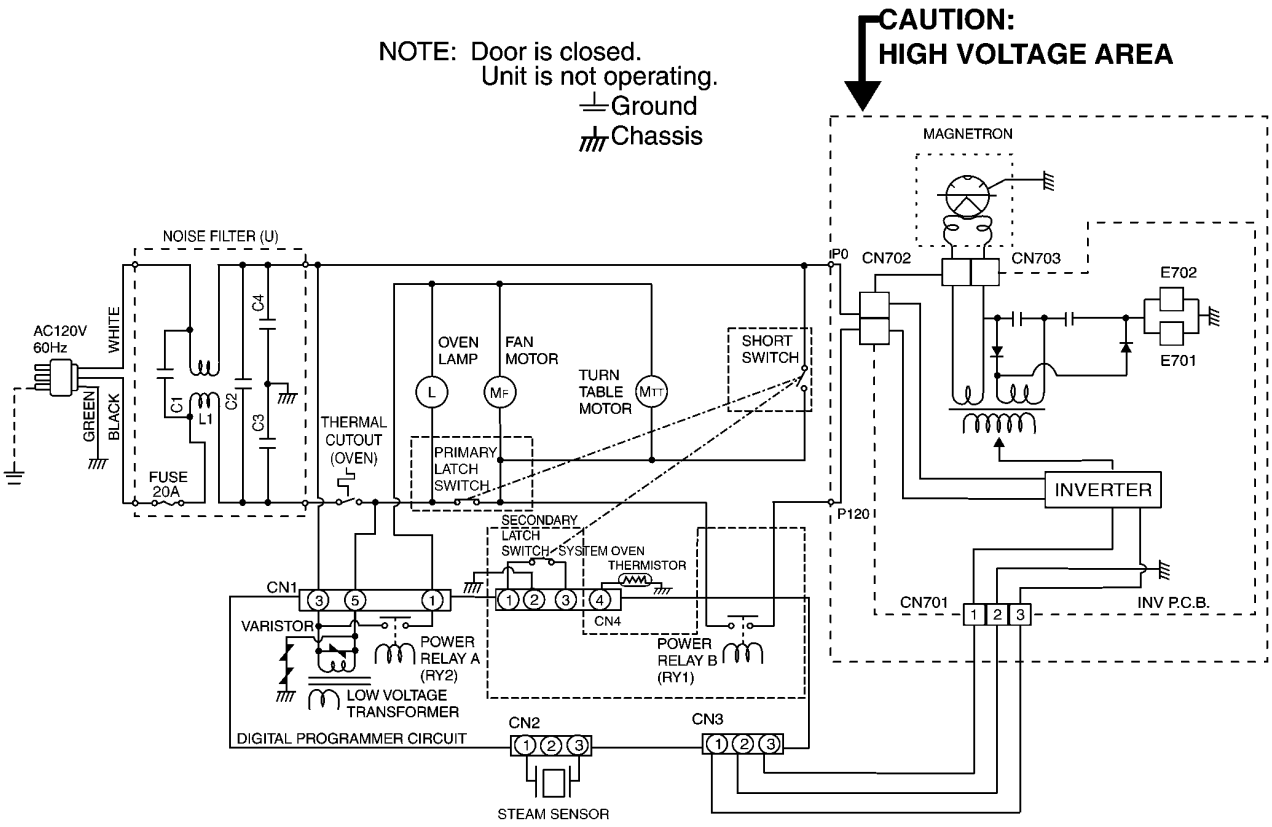




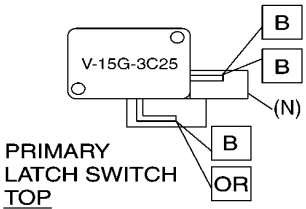
HIGH VOLTAGE INVERTER

SYMBOL	COLOR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK
N	NATURAL

1.2. CPH

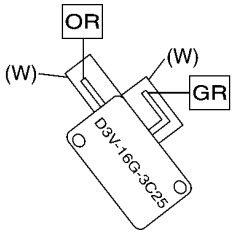


WIRING DIAGRAM (CPH)

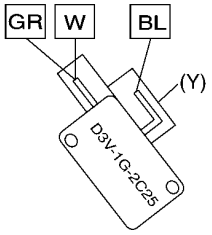


PRIMARY
LATCH SWITCH
TOP

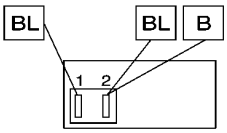
NOTE: * When replacing, check the lead wire color as shown.
***Colors shown by ( ) indicate colors of lead wire connector housing.**



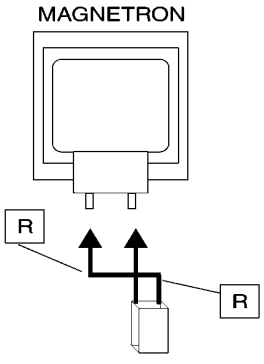
SECONDARY
LATCH SWITCH
BOTTOM (OUTSIDE)

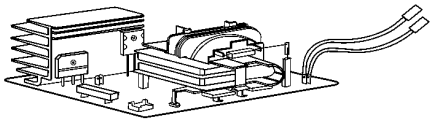


SHORT
LATCH SWITCH
BOTTOM (INSIDE)



POWER RELAY B (RY1)





HIGH VOLTAGE INVERTER

SYMBOL	COLOR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK
N	NATURAL

2 MEASUREMENTS AND ADJUSTMENTS

WARNING

* For continued protection against radiation hazard, replace only with identical replacement parts (For touch models part No. J61415G10XN, Type No. V-15G-3C25 for primary latch switch; Part No. J61414T00AP, Type No. D3V-16G-3C25 for Secondary latch switch and Part No. J61784T00AP, Type No. D3V-1G-2C25 for short switch.)
* When the 20 Amp. fuse is blown due to the operation of the short switch, you must replace power relay B (part No. AEBGJQC25F18, Type No.G5G-1A18VDC), Primary latch switch and the short switch. Then follow the installation procedures below.
* Interlock switch replacement In replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.
* Refer to schematic diagram to ensure proper connection.

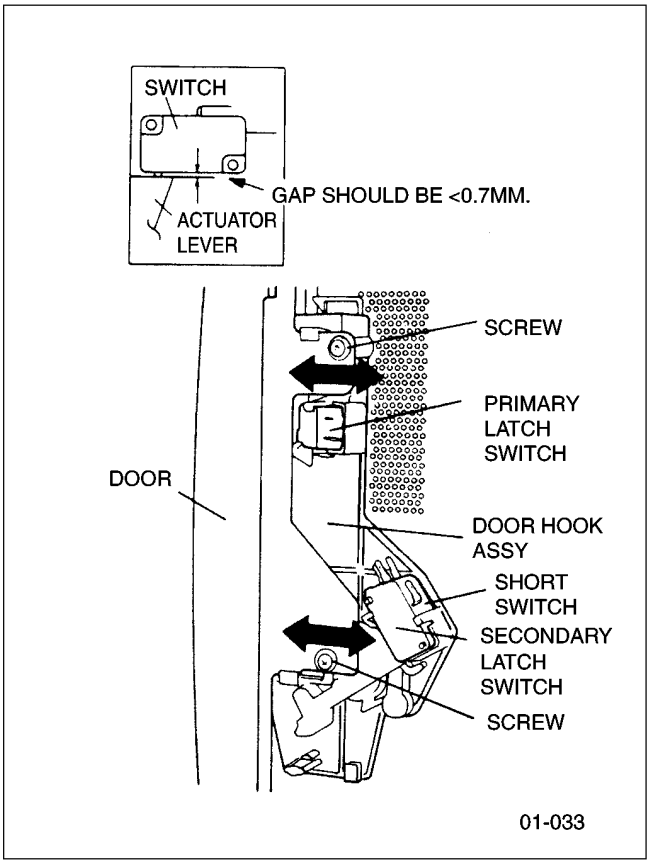
2.1. Adjustment of primary latch switch, secondary latch switch and short switch.

1. Mount the Primary latch switch, the Secondary latch switch and the short switch to the door hook assembly as shown in ILL.

   NOTE:

   No specific individual adjustments during installation of the Primary latch switch, Secondary latch switch or Short switch to the door hook are required.

2. When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of the arrows in the illustration so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the door hook assembly to the oven assembly.
3. Reconnect the short switch and check the continuity of the monitor circuit and all latch switches again by following the component test procedures.



2.2. Measurement of microwave output

The output power of the magnetron can be determined by performing IEC standard test procedures. However,due to the complexity of IEC test procedures, it is recommended to test the magnetron using the simple method outlined below.

Necessary Equipment:

*1 liter beaker *Glass thermometer
*Wrist watch or stopwatch

NOTE:

Check the line voltage under load.Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurately as possible.

1. Fill the beaker with exactly one liter of tap water.Stir the water using the thermometer and record the water's temperature. (recorded as T1).
2. Place the beaker on the center of glass tray.
   Set the oven for High power and heat it for exactly one minute.
3. Stir the water again and read the temperature of the water. (recorded as T2).
4. The normal temperature rise at High power level for each model is as shown in table.

TABLE (1L-1min.test)

RATED OUTPUT	TEMPERATURE RISE
1200W	Min. 18.5°F(10.3°C)
1300W	Min. 19.8°F(11.1°C)

3 PROCEDURE FOR MEASURING MICROWAVE ENERGY LEAKAGE

WARNING

Check for radiation leakage after every servicing. Should the leakage be more than 2 mW/cm^2 (1mW/cm^2 for Canada) inform PSTC, PSC, or PCI immediately. After repairing or replacing any radiation safety device, keep a written record for future reference, as required by D.H.H.S. and Health and Welfare Canada regulation. This requirement must be strictly observed. In addition, the leakage reading must be recorded on the service repair ticket while in the customer's home.

NOTE:

The U.S. Government standard is 5 mW/cm^2 while in the customer's home. 2mW/cm^2 stated here is our own voluntary standard. (1mW/cm^2 for Canada)

3.1. Equipment

- Electromagnatic radiation monitor
- Glass thermometer 212°F or 100°C
- 600cc glass beaker

3.2. Procedure for measuring radiation leakage

Note before measuring.

- Do not exceed meter full scale deflection. Leakage monitor should initially be set to the highest scale.
- To prevent false readings the test probe should be held by the grip portion of the handle only and moved along the shaded area in Figure no faster than 1 inch/sec (2.5cm/sec).
- Leakage with the outer panel removed ..... less than 5mW/cm^2.
- Leakage for a fully assembled oven with door normally closed ..... less than 2mW/cm^2 (1mW/cm^2 for Canada).
- Leakage for a fully assembled oven [Before the latch switch (primary) is interrupted] while pulling the door ..... less than 2mW/cm^2.

1. Pour 275 ± 15cc (9ozs^s± 1/2oz) of 20°C ± 5°C (68° ± 9°F) water in a beaker which is graduated to 600cc, and place in the center of the oven.
2. Set the radiation monitor to 2450MHz and use it following the manufacturer´s recommended test procedure to assure correct results.
3. When measuring the leakage, always use the 2 inch (5cm) spacer supplied with the probe.
4. Tap the start pad or set the timer and with the magnetron oscillating, measure the leakage by holding the probe perpendicular to the surface being measured.

3.2.1. Measurement with the outer panel removed.

Whenever you replace the magnetron, measure for radiation leakage before the outer panel is installed and after all necessary components are replaced or adjusted. Special care should be taken in measuring around the magnetron.

WARNING

Avoid contacting any high voltage parts.

3.2.2. Measurements with a fully assembled oven.

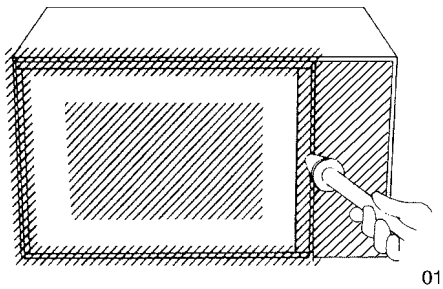
After all components, including outer panel are fully assembled, measure for radiation leakage around the door periphery, the door viewing window, the exhaust opening, control panel and air inlet openings.

3.3. Record keeping and notification after measurement

- After any adjustment or repair to a microwave oven, a leakage reading must be taken. Record this leakage reading on the repair ticket even if it is zero.

  A copy of this repair ticket and the microwave leakage reading should be kept by repair facility.
- Should the radiation leakage be more than 2 mW/cm^2 (1mW/cm for Canada) after determining that all parts are in good condition, functioning properly, and genuine replacement parts as listed in this manual have been used, immediately notify PSTC, PSC or PCI.

3.4. At least once a year, have the radiation monitor checked for calibration by its manufacturer.



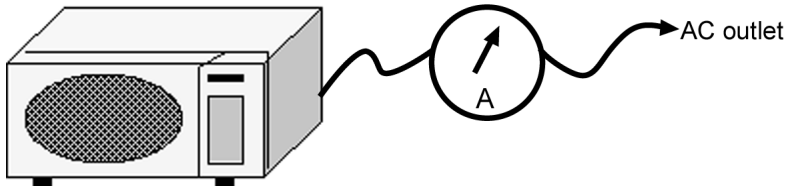
4 SIMPLE WAY OF H.V. INVERTER/MAGNETRON TROUBLESHOOTING

Purpose:

Simple way **(3/37 seconds rule)** of identifying whether it's Magnetron, Inverter, or others.

Set-up:

The unit under question is connected through the Ammeter as shown below.



Procedure:

Follow the matrix table below to identify the problem source.

Note:

Do not replace both Inverter board and Magnetron simultaneously and automatically without going through this procedure.

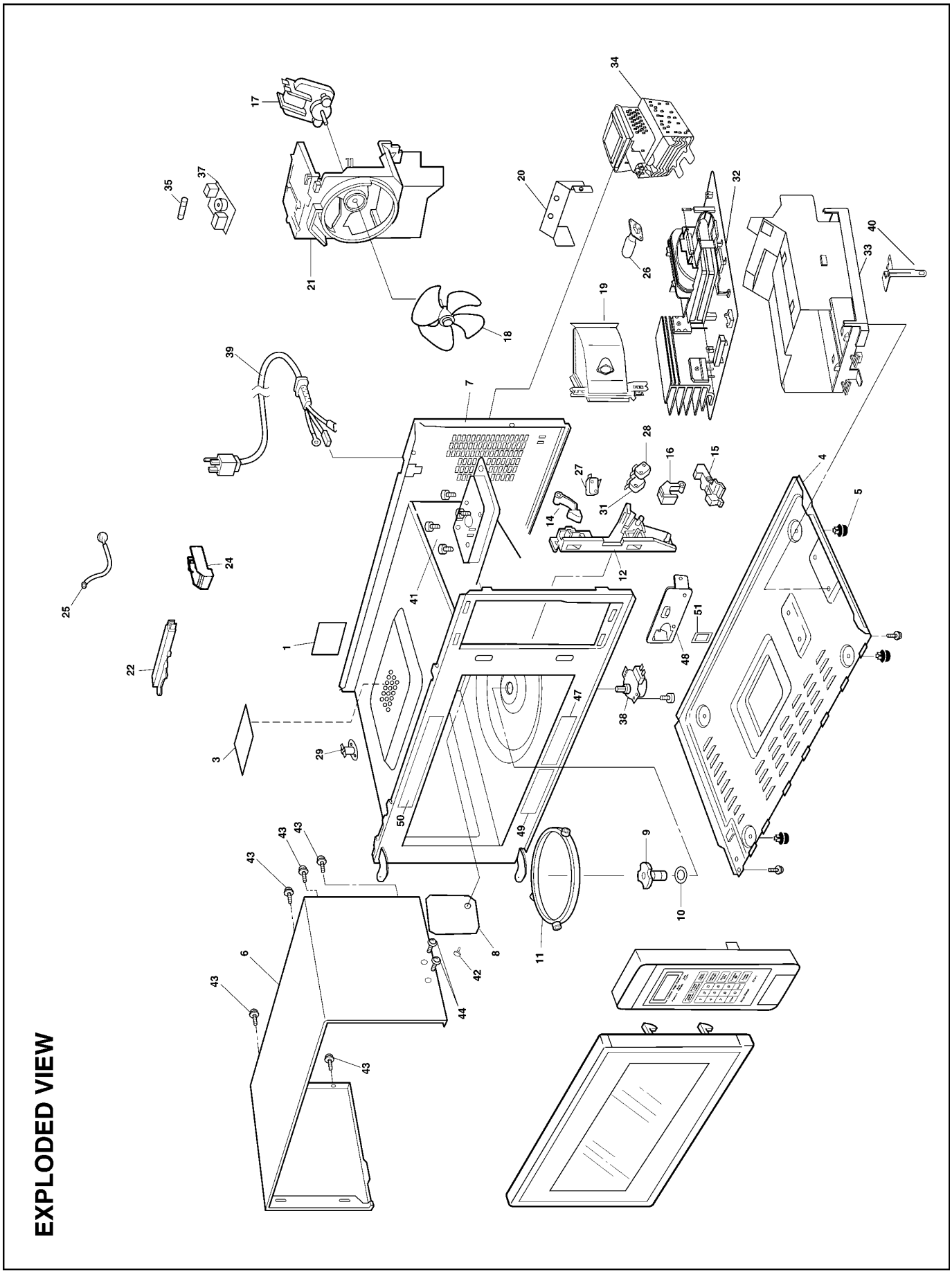
Power will:	Ammeter reading is:	To do:	Remedy:
Shut off in 37 seconds after "Start".	1. Between 0.5A and 1.0A.	Check and repair open magnetron circuit	Open magnetron wiring between Inverter and magnetron terminal.
	2. Between 1.0A and 2.0A.	Check continuity of D702 in Inverter PCB.	
		⇩	
		1. D702 shorted	Replace **H.V.Inverter**(F606Y8M00AP)
		2. D702 is OK	Replace **magnetron**
Shut off in 3 seconds after "Start"	1. Less than 0.5A	Check open circuit: Latch Switch, DPC, Power Relay and CN701	Replace defective component(s), or correct switch, cables and connectors.

5 H.V.INVERTER BOARD MAIN PARTS LIST (F606Y8M00AP)

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
DB701		B0FBBS000001	BRIDGE DIODE	1	20A, 600V
L701		F50206G00AP	CHOKE COIL	1	
Q701		B1JAGV000015	TRANSISTOR SI	1	1000V
T701	⚠	A609A8M00AP	H.V. TRANSFORMER	1	(INCLUDING D701,D702,C706,C707)
C701		ECWF5284N300	CAPACITOR	1	0.28µF/500V
C702		ECWF2455N644	CAPACITOR	1	4.5µF/250V

6 EXPLODED VIEW AND PARTS LIST

6.1. EXPLODED VIEW



6.2. PARTS LIST

NOTE:

1. When ordering replacement part(s), please use part number(s) shown in this part list.
   Do not use description of the part.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacture's specified parts.

NOTE:

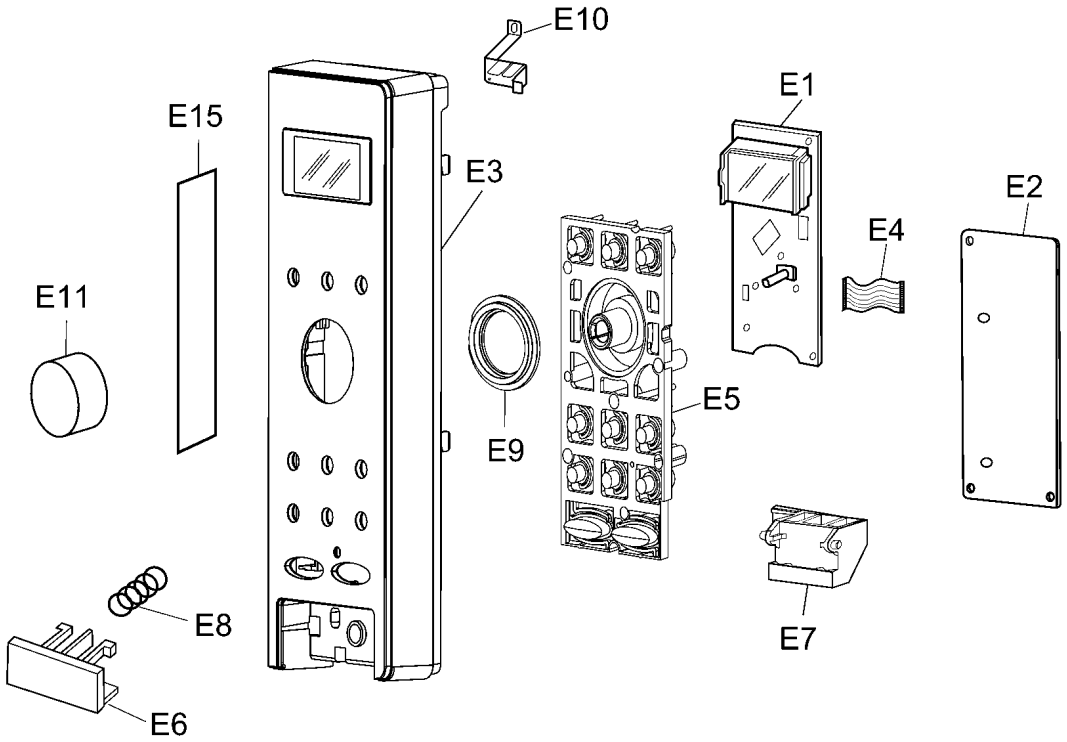
"A" parts are supplied by MOBU (Japan)

"F" parts are supplied by PHAMOS (China)

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
1		F00064W70AP	CAUTION LABEL	1	APH
1		F00067600CP	CAUTION LABEL	1	CPH
3		F00338F00AP	FUSE LABEL	1	
4		F10016P40AP	BASE	1	
5		F10084T00AP	RUBBER FOOT	4	
6		F110D5W10SAP	CABINET BODY	1	SD997S APH,SN977S APH
6		F110D6G10SAP	CABINET BODY	1	SD997S CPH
6		F110D5W20SAP	CABINET BODY	1	SD987S/SB APH,SD967S APH, SN957S APH,SN947S APH
7	⚠	F200A8D00AP	OVEN	1	
8		F20555K00AP	COVER	1	
9		F21315Y00AP	PULLY SHAFT	1	
10		F2177-F80	WASHER	1	
11		F290D9330AP	ROLLER RING(U)	1	
12	⚠	F3020-1200	DOOR HOOK	1	
14		F3136-1200	HOOK LEVER A	1	
15		F31374650AP	HOOK LEVER B	1	
16		F31384650AP	HOOK LEVER C	1	
17		F400A8F00AP	FAN MOTOR	1	AC120V,SINGLE PHASE,60Hz
18		F40084T00AP	FAN BLADE	1	
19		F40254W00AP	AIR GUIDE A	1	
20		F40264T60APG	AIR GUIDE B	1	
21		F41445W00AP	ORIFICE	1	
22		F64508660AP	SENSOR COVER B	1	
24		F65434W00AP	SENSOR COVER C	1	
25		A607S4M00AP	STEAM SENSOR	1	
26		F612E5Y30AP	INCANDESCENT LAMP (U)	1	125V,60Hz
27	⚠	J61415G10XN	MICRO SWITCH	1	(PRIMARY LATCH SWITCH)(V-15G-3C25)
28	⚠	J61414T00AP	MICRO SWITCH	1	(SECONDARY LATCH SWITCH)(D3V-16G-3C25)
29	⚠	F61456N60AP	THERMAL CUTOUT	1	150°C/-20°C
31	⚠	F61785U30XN	MICRO SWITCH	1	(SHORT SWITCH)(D3V-1G-2C25)
32	⚠	F606Y8M00AP	H.V.INVERTER (U)	1	
33		F65856K50AP	INVERTER BRACKET	1	
34	⚠	2M261-M32KLP	MAGNETRON	1	APH
34	⚠	2M261-M32JP	MAGNETRON	1	CPH
35	⚠	F62308F20AP	FUSE	1	20A
37		F692Y8F00APX	NOISE FILTER	1	
38		F63265G60AP	TURNTABLE MOTOR	1	
39	⚠	F900C4T60CP	AC CORD W/PLUG	1	APH
39	⚠	F900C8E00CP	AC CORD W/PLUG	1	CPH
40		F66626G10AP	GROUNDING PLATE	1	
41		XTWFA4+12T	SCREW	4	FOR MAGNETRON
42		F90804W00AP	CANOE CLIP	1	FOR COVER
43		XTTBFE4T12A0	SCREW	5	FOR CABINET BODY
44		XTTFA4+6BN	SCREW	2	FOR CABINET BODY SIDE
46		F02445Y00AP	CAUTION LABEL	1	SD997S APH/CPH,SD987S/SB APH,SN977S APH
47		F03347B60AP	MENU LABEL	1	SD997S APH,SD987S/SB APH,SD967S APH
47		F03347B60CP	MENU LABEL	1	SD997S CPH
48		F82574U00AP	DOOR OPENING BRACKET	1	SD967S APH,SN947S APH
48		F82575W00AP	DOOR OPENING BRACKET	1	EXCEPT SD967S APH & SN947S APH
49		F04467D00AP	FUNCTION LABEL	1	SD997S APH,SD987S/SB APH,SD967S APH
49		F04467D00CP	FUNCTION LABEL	1	SD997S CPH
50		F00067C50AP	CAUTION LABEL	1	APH
50		F00067C50CP	CAUTION LABEL	1	CPH
51		F11406G00AP	LEVER STOPPER	1	SD997S APH/CPH,SD987S/SB APH,SN977S APH

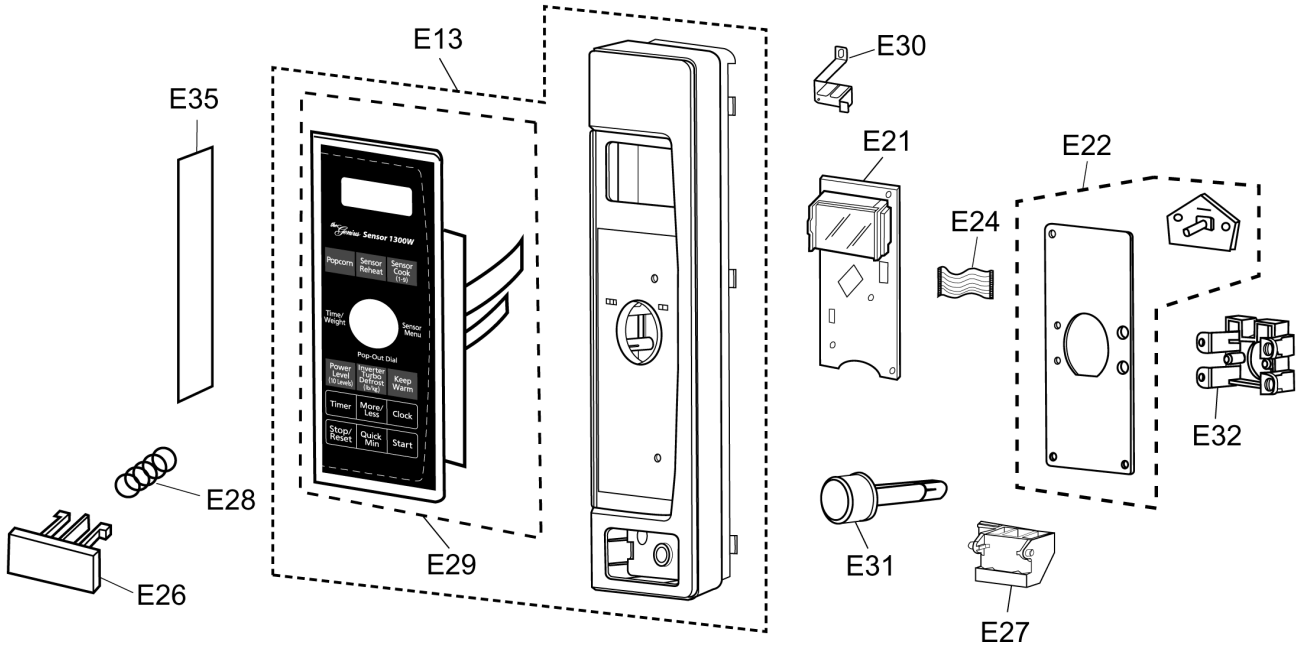
6.3. ESCUTCHEON BASE ASSEMBLY

6.3.1. NN-SD997S APH/CPH, SD987S/SB APH



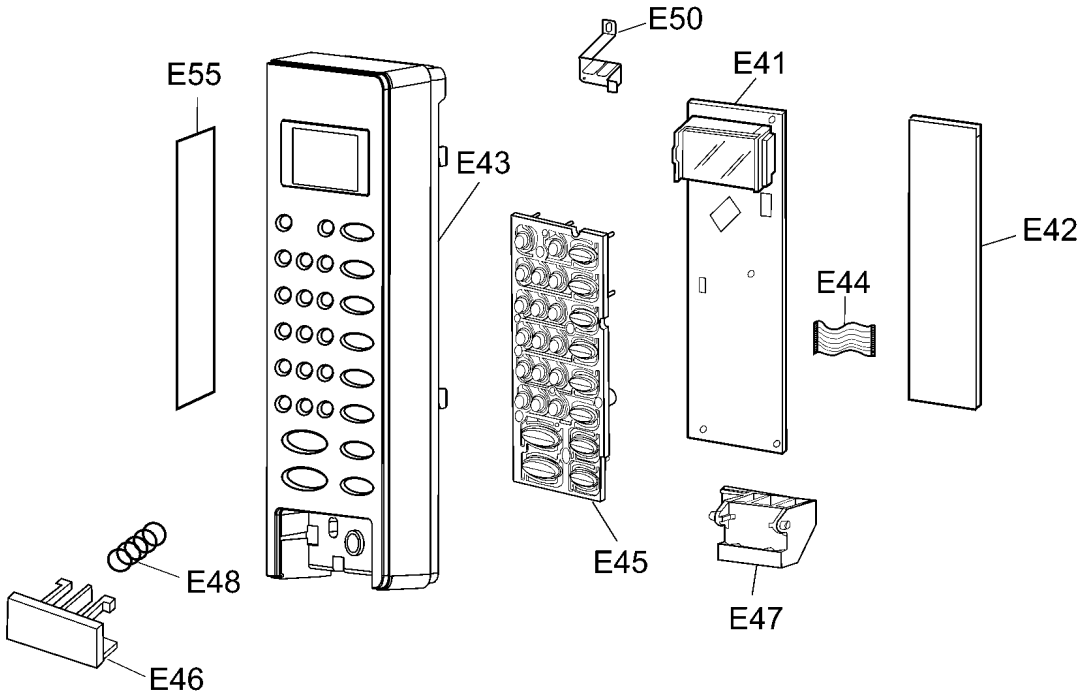
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E1		F603L8P00AP	D.P.CIRCUIT (AU)	1	SD997S APH,SD987S/SB APH
E1		F603L8P00CP	D.P.CIRCUIT (AU)	1	SD997S CPH
E2		F603Y8P00AP	D.P.CIRCUIT (DU)	1	SD997S APH,SD987S/SB APH
E2		F603Y8P00CP	D.P.CIRCUIT (DU)	1	SD997S CPH
E3		F800L8P00SAP	ESCUTCHEON BASE (U)	1	SD997S APH,SD987S/SB APH
E3		F800L8P00SCP	ESCUTCHEON BASE (U)	1	SD997S CPH
E4		F66167D00AP	FLAT CABLE	1	SD997S APH/CPH,SD987S/SB APH
E5		F82988P00SAP	BUTTON	1	SD997S APH/CPH,SD987S/SB APH
E6		F891P6G00SAP	DOOR OPENING BUTTON (U)	1	SD997S APH/CPH,SD987S/SB APH
E7		F82565W00AP	DOOR OPENING LEVER	1	SD997S APH/CPH,SD987S/SB APH
E8		F80375K00AP	COOK BUTTON SPRING	1	
E9		F80098P00AP	LED COVER A	1	SD997S APH/CPH,SD987S/SB APH
E10		F90095X00AP	GROUNDING PANEL	1	SD997S APH/CPH,SD987S/SB APH
E11		F83928P00KAP	DIAL	1	SD997S APH/CPH,SD987S/SB APH
E15		F00078P00SAP	NAME PLATE	1	SD997S APH
E15		F00078P00SCP	NAME PLATE	1	SD997S CPH
E15		F00078P10SAP	NAME PLATE	1	SD987S/SB APH

6.3.2. NN-SD967S APH



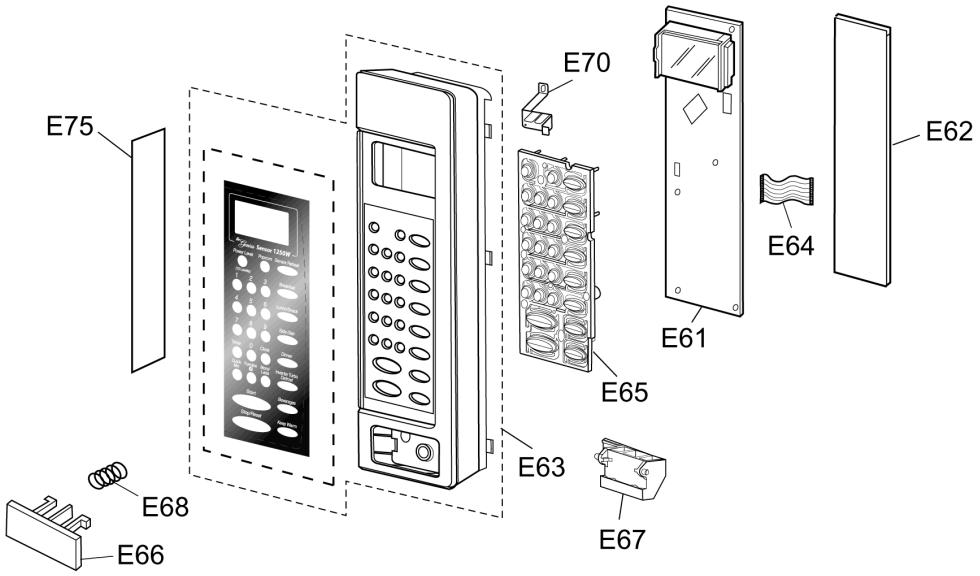
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E21		F603L8P30AP	D.P.CIRCUIT (AU)	1	SD967S APH
E22		F603Y7A10AP	D.P.CIRCUIT (DU)	1	SD967S APH
E23		F800L8P30SAP	ESCUTCHEON BASE (U)	1	SD967S APH
E24		F66167D00AP	FLAT CABLE	1	SD967S APH
E26		F80724M60SCP	DOOR OPENING BUTTON (U)	1	SD967S APH
E27		F82564M60AP	DOOR OPENING LEVER	1	SD967S APH
E28		F80375K00AP	COOK BUTTON SPRING	1	
E29		F630Y7A10SAP	MEMBRANE SWITCH (U)	1	SD967S APH
E30		F90095X00AP	GROUNDING PANEL	1	SD967S APH
E31		F803G7D00BAP	POP-UP DIAL (U)	1	SD967S APH
E32		F80187D00BAP	BACKSTOP	1	SD967S APH
E35		F00078P30SAP	NAME PLATE	1	SD967S APH

6.3.3. NN-SN977S APH



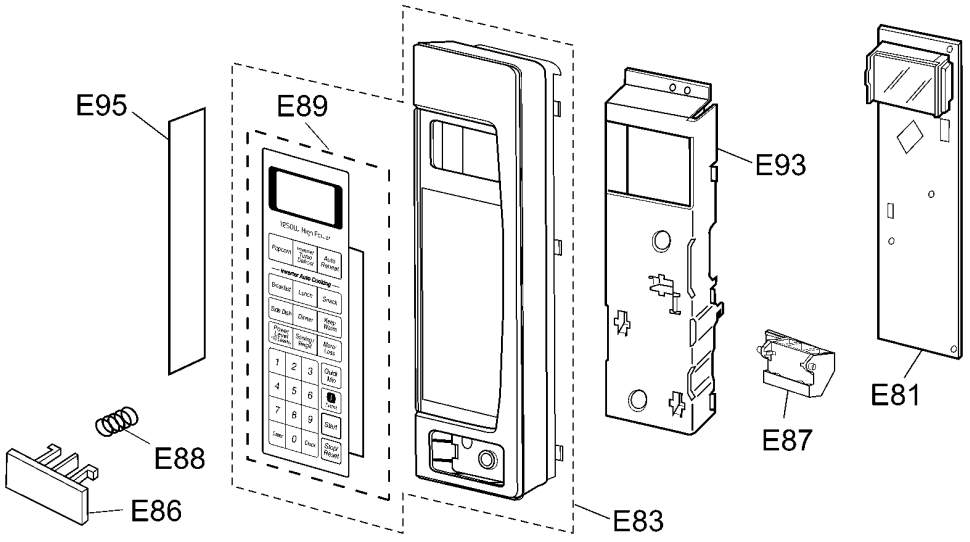
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E41		F603L8P50AP	D.P.CIRCUIT (AU)	1	SN977S APH
E42		F603Y5W00AP	D.P.CIRCUIT (DU)	1	SN977S APH
E43		F800L8P50SAP	ESCUTCHEON BASE (U)	1	SN977S APH
E44		F66164W20AP	FLAT CABLE	1	SN977S APH
E45		F82986G00SAP	BUTTON	1	SN977S APH
E46		F891P8P50SAP	DOOR OPENING BUTTON (U)	1	SN977S APH
E47		F82565W00AP	DOOR OPENING LEVER	1	SN977S APH
E48		F80375K00AP	COOK BUTTON SPRING	1	
E50		F90095X00AP	GROUNDING PANEL	1	SN977S APH
E55		F00078P50SAP	NAME PLATE	1	SN977S APH

6.3.4. NN-SN957S APH



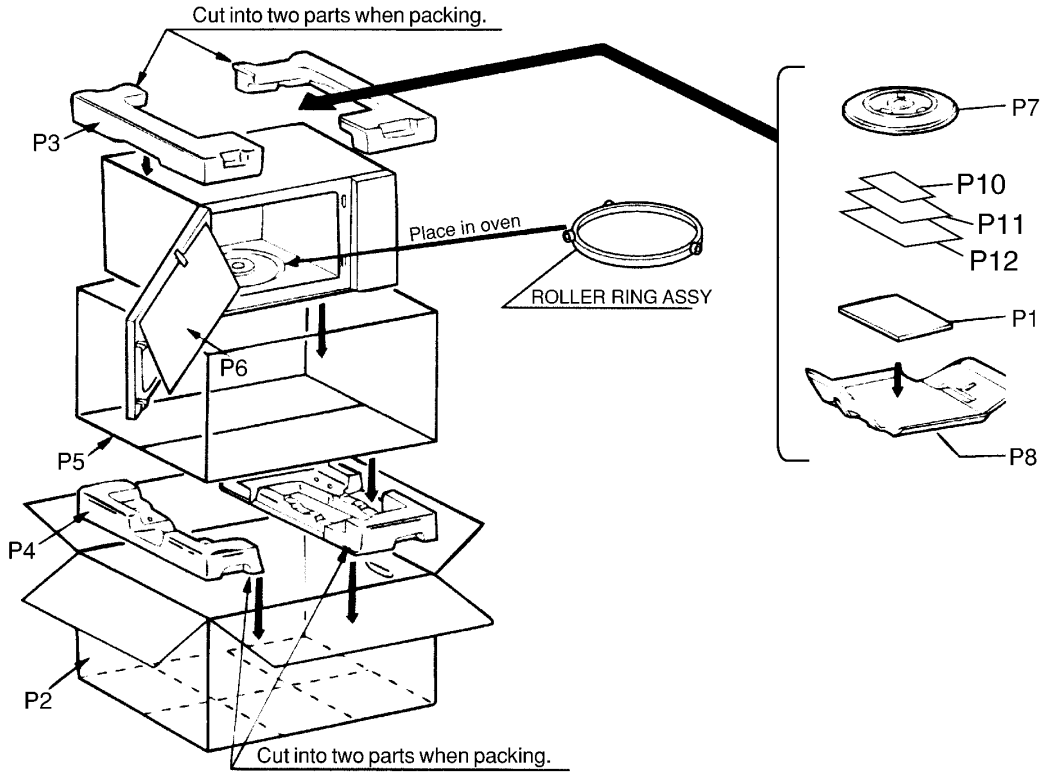
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E61		F603L8P70AP	D.P.CIRCUIT (AU)	1	SN957S APH
E62		F603Y5W00AP	D.P.CIRCUIT (DU)	1	SN957S APH
E63		F800L8P70SAP	ESCUTCHEON BASE (U)	1	SN957S APH
E64		F66164W20AP	FLAT CABLE	1	SN957S APH
E65		F82985W00AP	BUTTON	1	SN957S APH
E66		F80724M60SCP	DOOR OPENING BUTTON (U)	1	SN957S APH
E67		F82565W00AP	DOOR OPENING LEVER	1	SN957S APH
E68		F80375K00AP	COOK BUTTON SPRING	1	
E70		F90095X00AP	GROUNDING PANEL	1	SN957S APH
E75		F00078P70SAP	NAME PLATE	1	SN957S APH

6.3.5. NN-SN947S APH



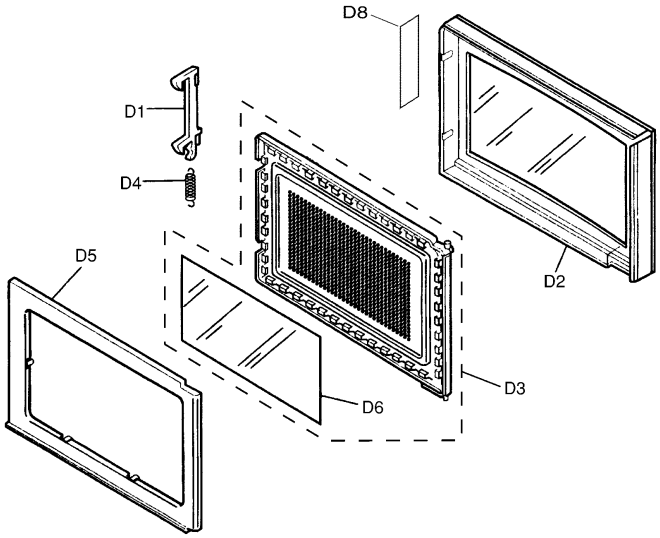
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E81		F603L8P90AP	D.P.CIRCUIT (AU)	1	SN947S APH
E83		F800L8S20SAP	ESCUTCHEON BASE (U)	1	SN947S APH
E86		F80724M60SCP	DOOR OPENING BUTTON (U)	1	SN947S APH
E87		F82564M60AP	DOOR OPENING LEVER	1	SN947S APH
E88		F80375K00AP	COOK BUTTON SPRING	1	
E89		F630Y8P90BAP	MEMBRANE SWITCH (U)	1	SN947S APH
E93		F81278D60AH	BACK PANEL	1	SN947S APH
E95		F00078S20SAP	NAME PLATE	1	SN947S APH

6.4. PACKING AND ACCESSORIES



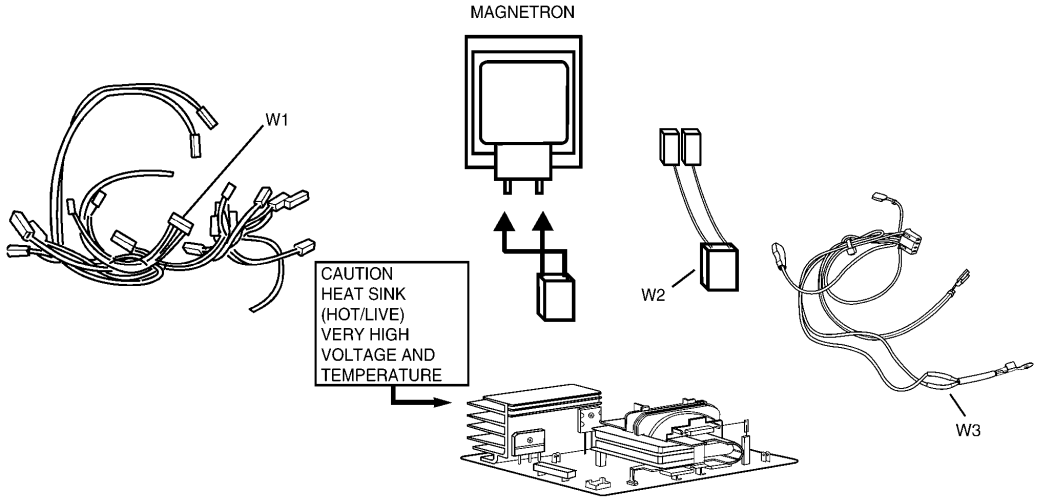
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
P1		F00038N00AP	INSTRUCTION MANUAL	1	SD997S APH,SD987S/SB APH
P1		F00038N00CP	INSTRUCTION MANUAL	1	SD997S CPH
P1		F00038M30AP	INSTRUCTION MANUAL	1	SD967S APH
P1		F00038N50AP	INSTRUCTION MANUAL	1	SN977S APH,SN957S APH,SN947S APH
P2		F01028P00SAP	PACKING CASE,PAPER	1	SD997S APH
P2		F01028P00SCP	PACKING CASE,PAPER	1	SD997S CPH
P2		F01028P10SAP	PACKING CASE,PAPER	1	SD987S/SB APH
P2		F01028P30SAP	PACKING CASE,PAPER	1	SD967S APH
P2		F01028P50SAP	PACKING CASE,PAPER	1	SN977S APH
P2		F01028P70SAP	PACKING CASE,PAPER	1	SN957S APH
P2		F01028S20SAP	PACKING CASE,PAPER	1	SN947S APH
P3		F01044W00AP	UPPER FILLER	1	
P4		F01054W00AP	LOWER FILLER	1	
P5		F01067C50AP	P.E.BAG	1	
P6		F01074U00AP	DOOR SHEET	1	
P7		A06014M00AP	COOKING TRAY	1	
P8		F01084M00AP	TRAY PACKING	1	
P9		F01924U00AP	SHEET	1	EXCEPT SN977S APH
P10		F00065G40AP	CAUTION LABEL	1	APH
P11		F04458N00SCP	OVERLAY	1	SD997S CPH
P12		F04317D00CP	INSTALLATION INSTRUCTION	1	CPH

6.5. DOOR ASSEMBLY



Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
D1		F30186P40AG	DOOR KEY A	1	
D2	⚠	F301A8P00SAP	DOOR A (U)	1	SD997S APH/CPH,SD987S/SB APH
D2	⚠	F301A8P30SAP	DOOR A (U)	1	SD967S APH
D2	⚠	F301A8P50SAP	DOOR A (U)	1	SN977S APH
D2	⚠	F301A8P70SAP	DOOR A (U)	1	SN957S APH
D2	⚠	F301A8S20SAP	DOOR A (U)	1	SN947S APH
D3	⚠	F302K4U00AP	DOOR E (U)	1	
D4		F30216P40AG	DOOR KEY SPRING	1	SD997S APH/CPH,SD987S/SB APH
D4		F30215G10XN	DOOR KEY SPRING	1	SD967S APH,SN977S APH,SN957S APH,SN947S APH
D5	⚠	F30854U00AP	DOOR C	1	
D6	⚠	F31454U00AP	DOOR SCREEN A	1	
D8		F02459660AP	DHHS LABEL	1	APH
D8		F04114180CP	HC LABEL	1	CPH

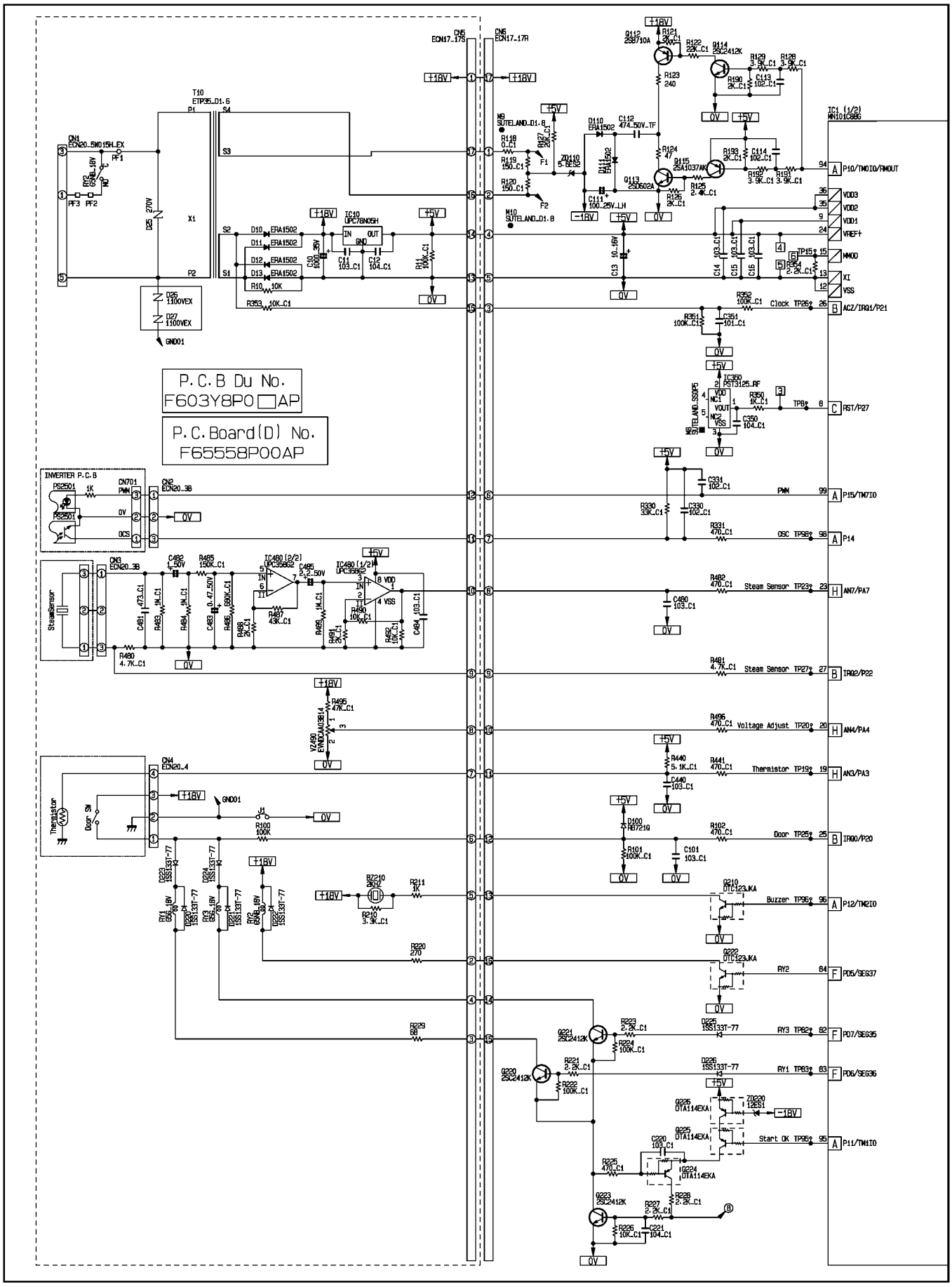
6.6. WIRING MATERIALS

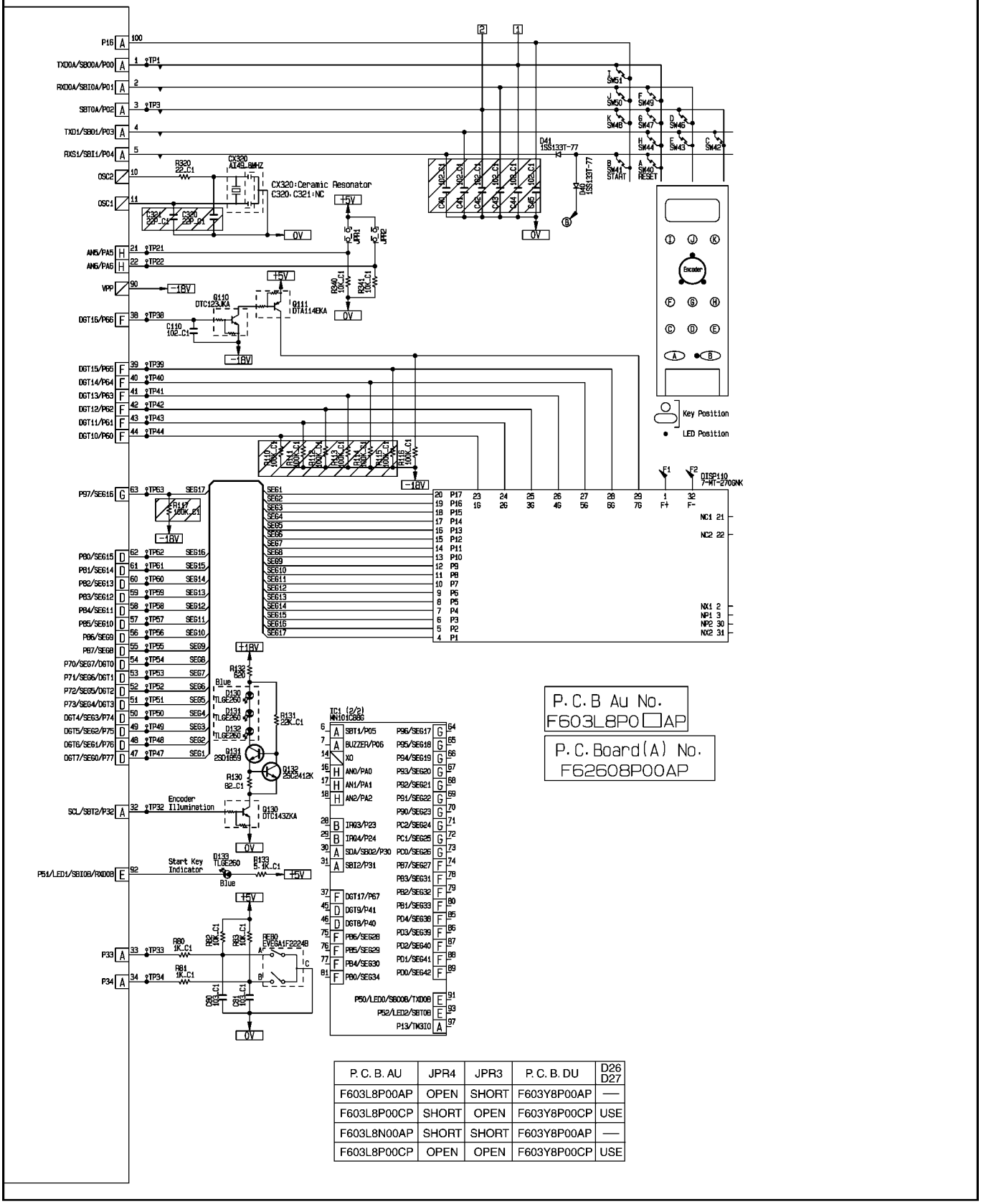


Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
W1		F030A7B70AP	LEAD WIRE HARNESS	1	APH
W1		F030A7B60CP	LEAD WIRE HARNESS	1	CPH
W2		F030E6G30AP	H.V.LEAD WIRE	1	APH
W2		F030E6G30CP	H.V.LEAD WIRE	1	CPH
W3		F03537B70AP	LEAD WIRE HARNESS (U)	1	(INCLUDING THERMISTOR)

7 DIGITAL PROGRAMMER CIRCUIT

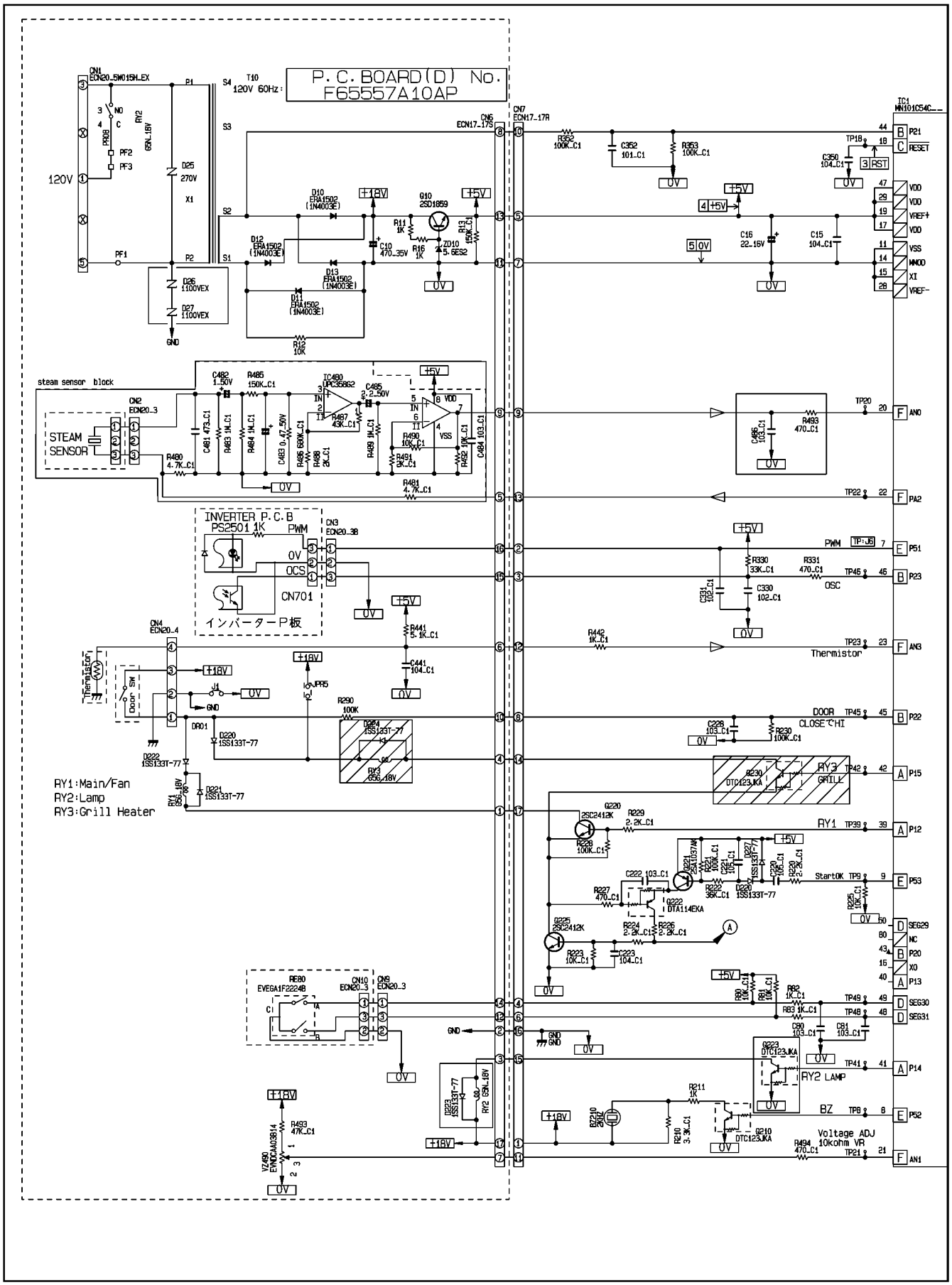
7.1. NN-SD997S APH/CPH, SD987S/SB APH

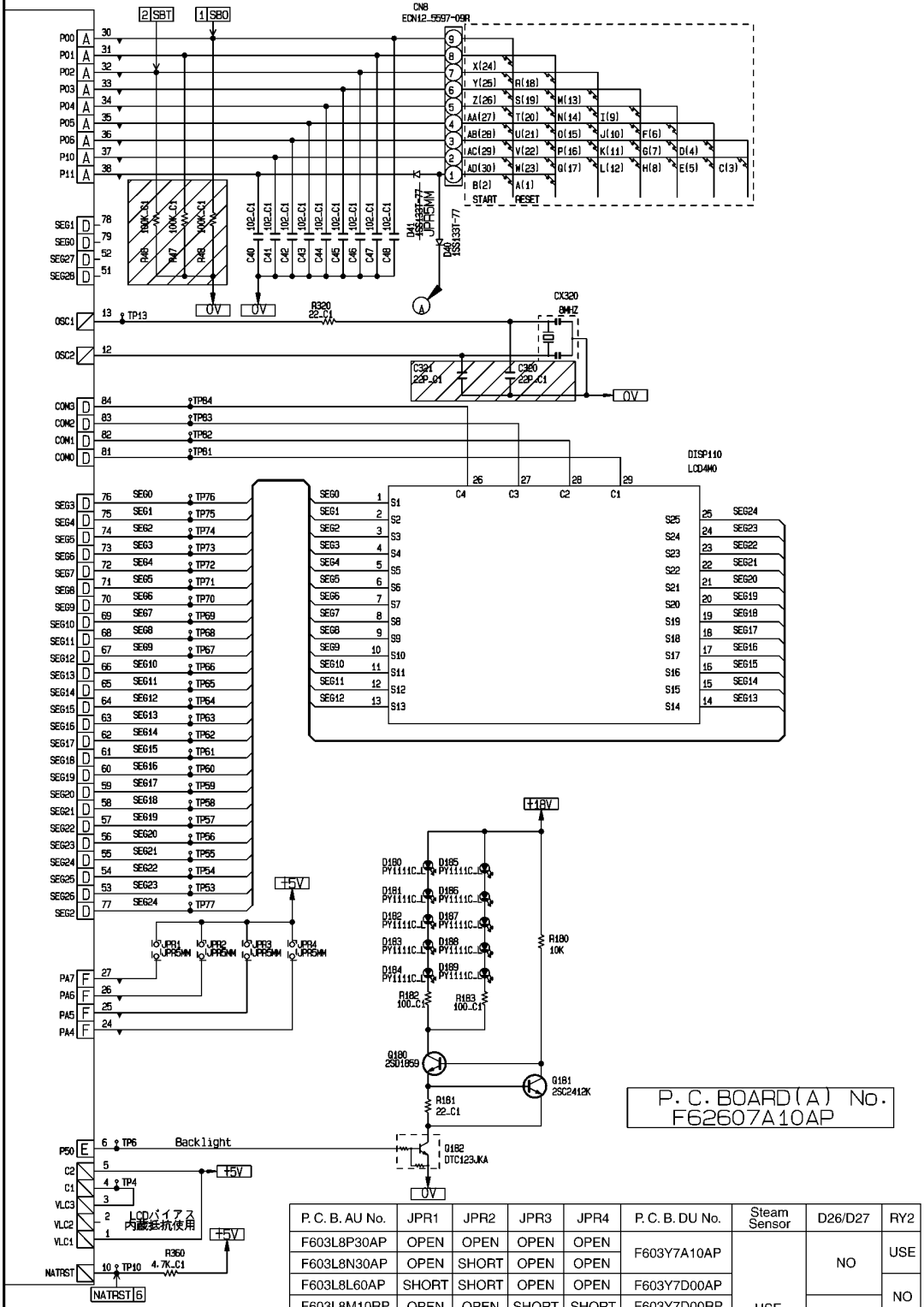




P. C. B. AU	JPR4	JPR3	P. C. B. DU	D26 D27
F603L8P00AP	OPEN	SHORT	F603Y8P00AP	—
F603L8P00CP	SHORT	OPEN	F603Y8P00CP	USE
F603L8N00AP	SHORT	SHORT	F603Y8P00AP	—
F603L8P00CP	OPEN	OPEN	F603Y8P00CP	USE

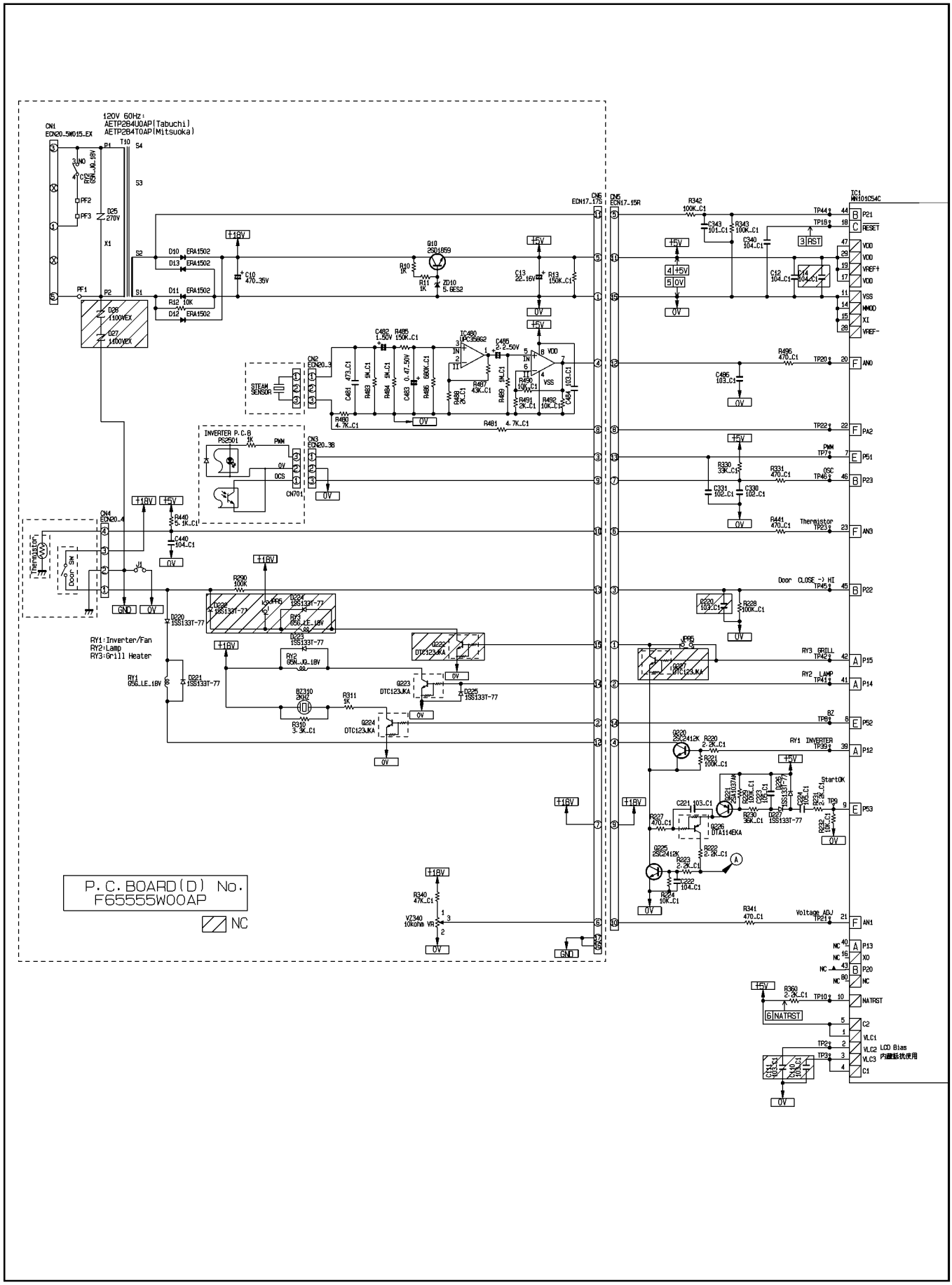
7.2. NN-SD967S APH

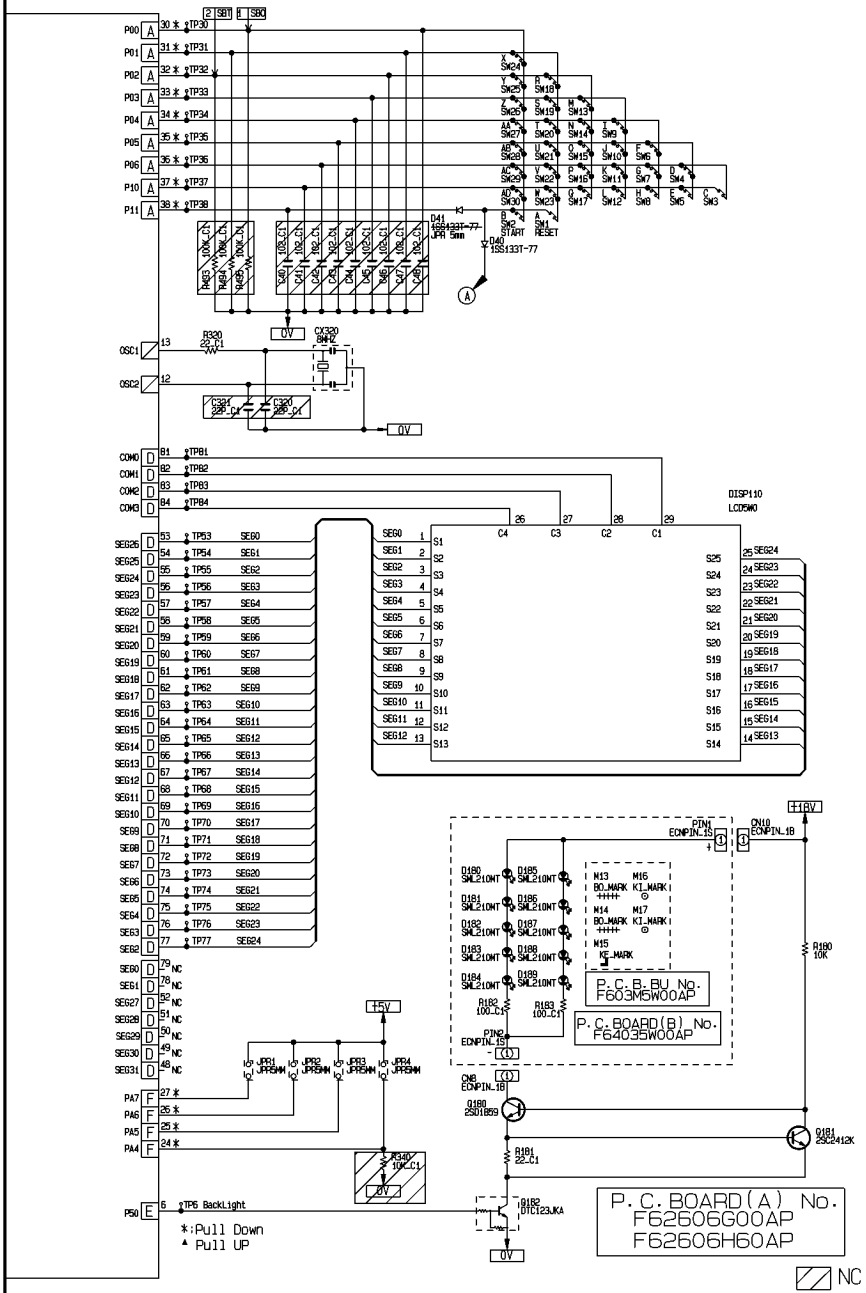




P. C. B. AU No.	JPR1	JPR2	JPR3	JPR4	P. C. B. DU No.	Steam Sensor	D26/D27	RY2
F603L8P30AP	OPEN	OPEN	OPEN	OPEN	F603Y7A10AP	USE	NO	USE
F603L8N30AP	OPEN	SHORT	OPEN	OPEN				
F603L8L60AP	SHORT	SHORT	OPEN	OPEN	F603Y7D00AP			NO
F603L8M10RP	OPEN	OPEN	SHORT	SHORT	F603Y7D00RP		USE	
F603L8P80RP	SHORT	OPEN	OPEN	OPEN	F603Y7A10CP			USE
F603L8N90RP	OPEN	OPEN	OPEN	SHORT				
F603L8N30CP	OPEN	OPEN	SHORT	OPEN				
F603L8M10CP	OPEN	SHORT	SHORT	OPEN	F603Y7D00CP			

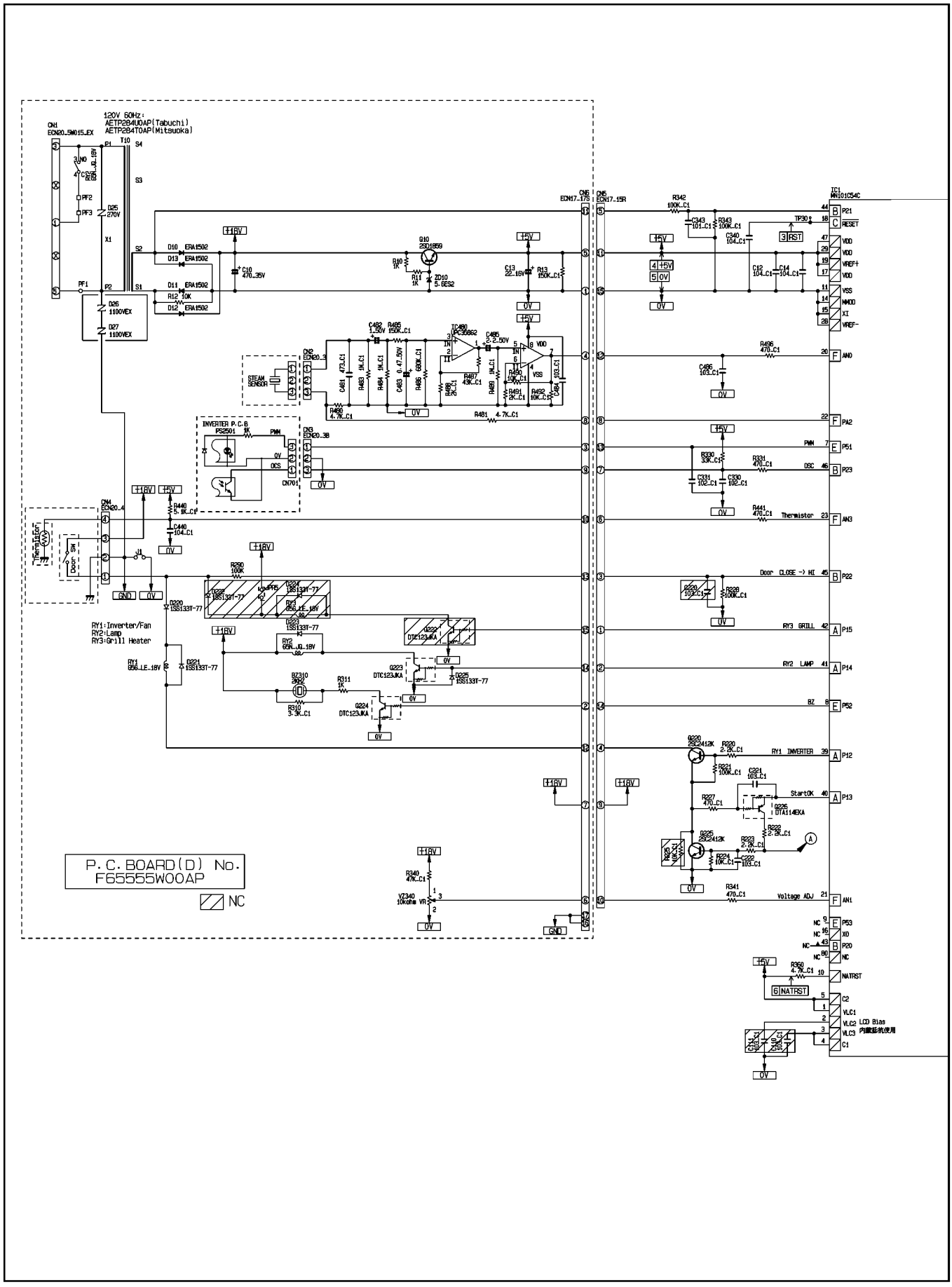
7.3. NN-SN977S APH

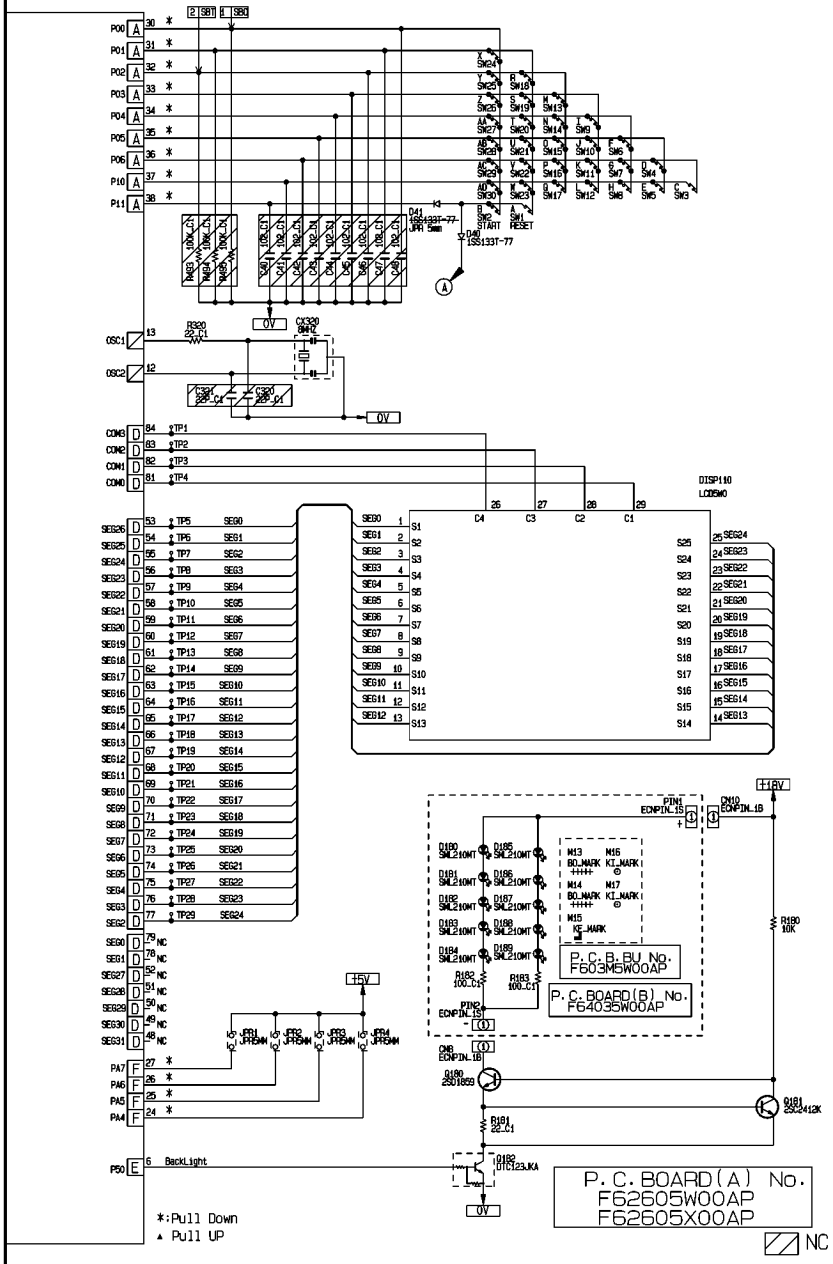




P. C. B. AU No.	JPR4	JPR3	JPR2	JPR1	Steam Sensor	P. C. Board (A). No.	P. C. B. DU No.	D26 D27	P. C. Board (D). No.
F603L8N50AP	SHORT	OPEN	OPEN	OPEN	USE	F62606H60AP	F603Y5W0_AP	NO	F65555W00AP
F603L8P50AP	OPEN	OPEN	OPEN	OPEN	USE	F62606G00AP			

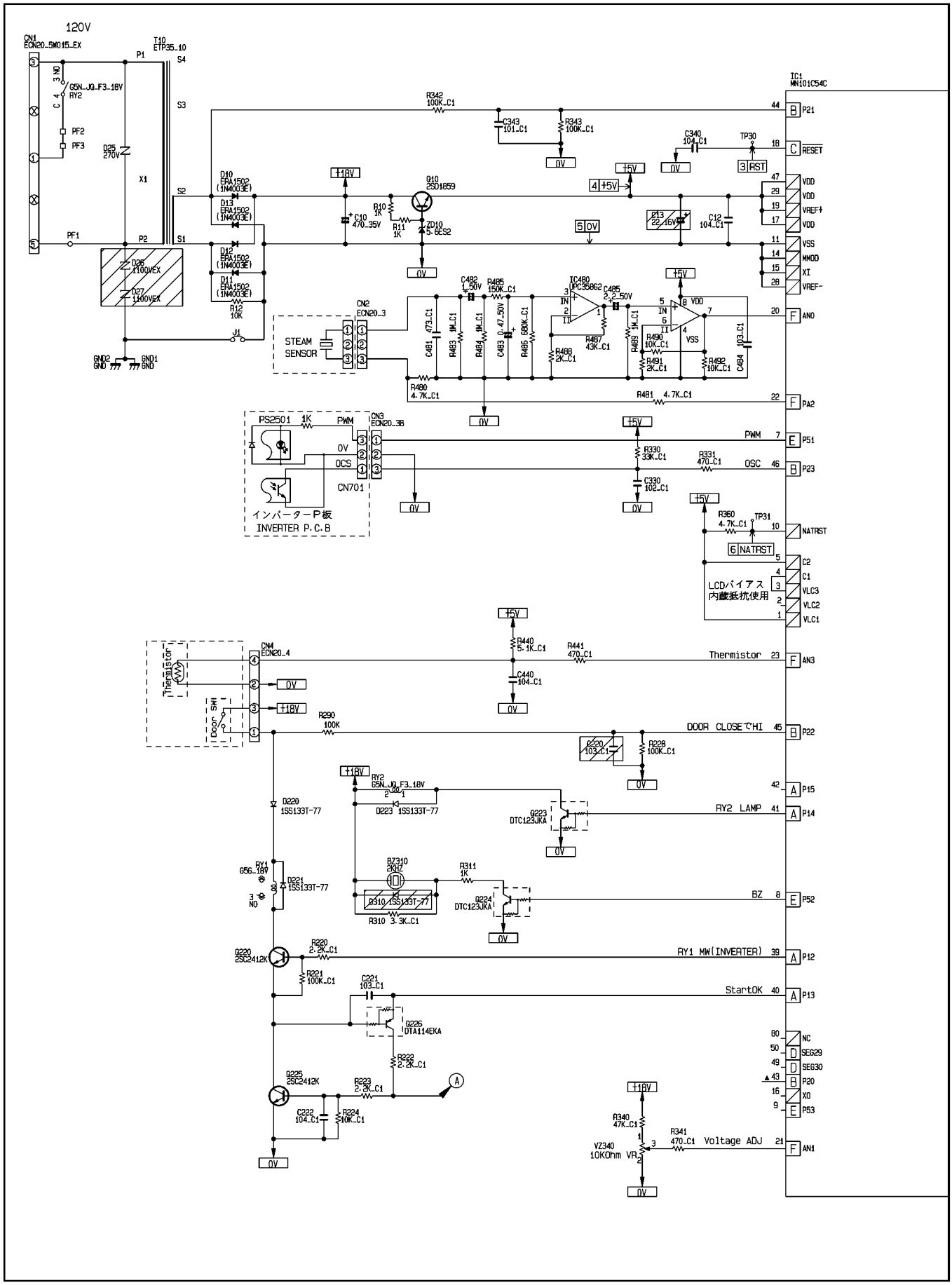
7.4. NN-SN957S APH

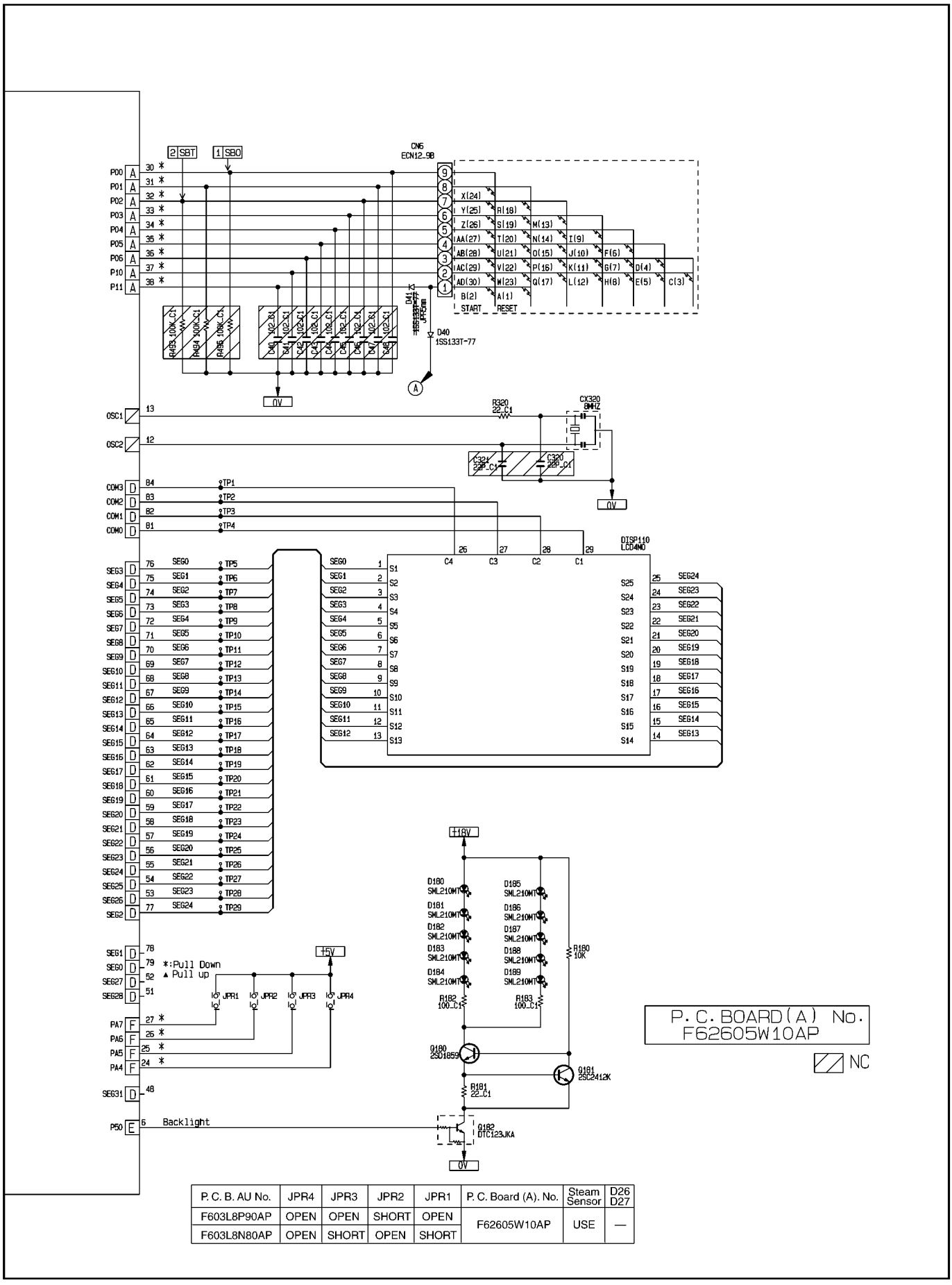




P. C. B. AU No.	JPR4	JPR3	JPR2	JPR1	Steam Sensor	P. C. Board (A). No.	P. C. B. DU No.	D26 D27
F603L8N70CP	SHORT	OPEN	SHORT	OPEN	USE	F62605X00AP	F603Y5W0_CP	USE
F603L8N70AP	SHORT	OPEN	OPEN	OPEN	USE	F62605X00AP	F603Y5W0_AP	NO
F603L8P70AP	OPEN	OPEN	OPEN	OPEN	USE	F62605W00AP	F603Y5W0_AP	NO

7.5. NN-SN947S APH





P. C. BOARD (A) No.
F62605W10AP

NC

P. C. B. AU No.	JPR4	JPR3	JPR2	JPR1	P. C. Board (A). No.	Steam Sensor	D26 D27
F603L8P90AP	OPEN	OPEN	SHORT	OPEN	F62605W10AP	USE	—
F603L8N80AP	OPEN	SHORT	OPEN	SHORT			

7.6. PARTS LIST

7.6.1. NN-SD997S APH/CPH,SD987S/SB APH

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
BZ210		L0DDEA000014	BUZZER	1	2.0KHz
C13		AECETS1C100B	AL CHEM CAPACITOR	1	10µF/16V
C111		ECEA1EKS101I	AL CHEM CAPACITOR	1	100µF/25V
C10		AECETK1V102B	AL CHEM CAPACITOR	1	1000µF/35V
C482		AECETS1H010B	AL CHEM CAPACITOR	1	1µF/50V
C483		AECETS1HR47B	AL CHEM CAPACITOR	1	0.47µF/50V
C485		AECETS1H2R2B	AL CHEM CAPACITOR	1	2.2µF/16V
CX320		EFOEC8004A4	CERAMIC RESONATOR	1	8.0MHz
DISP		A2BB00000150	VACUUM FLUORESCENCE DISPLAY	1	
DISP HOLDER		F66176Z00AP	LCD HOLDER	1	
		F67528P00AP	DIFFUSION SHEET	1	
D40,D225,D220,D222,D223		MA2C19600E	DIODE	5	
D10-D13,D110,D111		B0EAKT000025	DIODE	6	
D100		MA2C700A0F	DIODE	1	
D130-D133		AE3294UBCA7	LED	4	
IC1		MN101C88DAG	L.S.I.	1	
IC10		C0CAADG00060	IC	1	
IC350		C0EBH0000264	IC	1	
IC480		C0ABBA000230	IC	1	
Q131		B1BAAJ000003	TRANSISTOR	1	
D25		D4EAY271A036	ZENER RESISTOR	1	270V
D26,D27		D4EAY112A036	ZENER RESISTOR	2	1100V
RY1		AEBGJQC25F18	POWER RELAY	1	
RY2		K6B1AZA00011	POWER RELAY	1	
T10		G4C3AAD00006	LOW VOLTAGE TRANSFORMER	1	120V
VZ490		D3BB6103A006	VARISTOR	1	
RE80		EVEJ1HF2224B	REVOLVING ENCODER	1	
SW40-SW44,SW46-SW51		EVQ11L05R	SWITCH	11	
ZD110		B0BA3R500006	ZENER DIODE	1	
ZD220		B0BA01100004	ZENER DIODE	1	

7.6.2. NN-SD967S APH

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
BZ210		L0DDEA000014	BUZZER	1	2.0KHz
C10		AECETK1V471B	AL CHEM CAPACITOR	1	470µF/35V
C16		AECETS1C220B	AL CHEM CAPACITOR	1	22µF/16V
C482		AECETS1H010B	AL CHEM CAPACITOR	1	1µF/50V
C483		AECETS1HR47B	AL CHEM CAPACITOR	1	0.47µF/50V
C485		AECETS1H2R2B	AL CHEM CAPACITOR	1	2.2µF/16V
CX320		EFOEC8004A4	CERAMIC RESONATOR	1	8.0MHz
DISP110		L5AAAFD00019	LCD	1	
DISP HOLDER		F66175E40XN	LCD HOLDER	1	
		F67525E40XN	DIFFUSION SHEET	1	
D40,D220-D223,D226,D227		MA2C19600E	DIODE	7	
IC1		MN101C54CHX	L.S.I.	1	
IC480		C0ABBA000230	IC	1	
Q10,Q180		B1BAAJ000003	TRANSISTOR	2	
D25		D4EAY271A036	ZENER RESISTOR	1	270V
RY1		AEBGJQC25F18	POWER RELAY	1	
RY2		K6B1AZA00011	POWER RELAY	1	
T10		G4C2AAD00006	LOW VOLTAGE TRANSFORMER	1	120V
VZ1		D3CA6103A017	VARISTOR	1	
RE80		EVEJ1HF2224B	REVOLVING ENCODER	1	
ZD10		B0BA5R600016	ZENER DIODE	1	

7.6.3. NN-SN977S APH, SN957S APH

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
BZ310		L0DDEA000014	BUZZER	1	2.0KHz
C10		AECETK1V471B	AL CHEM CAPACITOR	1	470µF/35V
C13		AECETS1C220B	AL CHEM CAPACITOR	1	22µF/16V
C482		AECETS1H010B	AL CHEM CAPACITOR	1	1µF/50V
C483		AECETS1HR47B	AL CHEM CAPACITOR	1	0.47µF/50V
C485		AECETS1H2R2B	AL CHEM CAPACITOR	1	2.2µF/16V
CX320		EFOEC8004A4	CERAMIC RESONATOR	1	8.0MHz
DISP110		L5AAAFD00022	LCD	1	
DISP HOLDER		F66175W00AP	LCD HOLDER	1	
		F67525E40XN	DIFFUSION SHEET	1	
D40,D226,D227		MA2C19600E	DIODE	3	
D10-D13		B0EAKT000025	DIODE	4	
IC1		MN101C54CHY	L.S.I.	1	
IC480		C0ABBA000230	IC	1	
Q10,Q180		B1BAAJ000003	TRANSISTOR	2	
D25		D4EAY271A036	ZENER RESISTOR	1	270V
RY1		AEBGJQC25F18	POWER RELAY	1	
RY2		K6B1AZA00011	POWER RELAY	1	
T10		G4C2AAD00005	LOW VOLTAGE TRANSFORMER	1	120V
VZ340		D3CA6103A017	VARISTOR	1	10KΩ
SW1-SW4,SW6-SW8,SW11-SW30		EVQ11L05R	SWITCH	27	
ZD10		B0BA5R600016	ZENER DIODE	1	

7.6.4. NN-SN947S APH

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
BZ310		L0DDEA000014	BUZZER	1	2.0KHz
C10		AECETK1V471B	AL CHEM CAPACITOR	1	470µF/35V
C482		AECETS1H010B	AL CHEM CAPACITOR	1	1µF/50V
C483		AECETS1HR47B	AL CHEM CAPACITOR	1	0.47µF/50V
C485		AECETS1H2R2B	AL CHEM CAPACITOR	1	2.2µF/16V
CX320		EFOEC8004A4	CERAMIC RESONATOR	1	8.0MHz
DISP110		L5AAAFD00019	LCD	1	
DISP HOLDER		F66175440XN	LCD HOLDER	1	
		F67525E40XN	DIFFUSION SHEET	1	
D40,D220,D221,D223		MA2C19600E	DIODE	4	
D10-D13		B0EAKT000025	DIODE	4	
IC1		MN101C54CHY	L.S.I.	1	
IC480		C0ABBA000230	IC	1	
Q10,Q180		B1BAAJ000003	TRANSISTOR	2	
D25		D4EAY271A036	ZENER RESISTOR	1	270V
RY1		AEBGJQC25F18	POWER RELAY	1	
RY2		K6B1AZA00011	POWER RELAY	1	
T10		G4C2AAD00005	LOW VOLTAGE TRANSFORMER	1	120V
VZ340		D3CA6103A017	VARISTOR	1	10KΩ
ZD10		B0BA5R600016	ZENER DIODE	1	

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S-8P3, S-8P5
S-8P7, S-8S2
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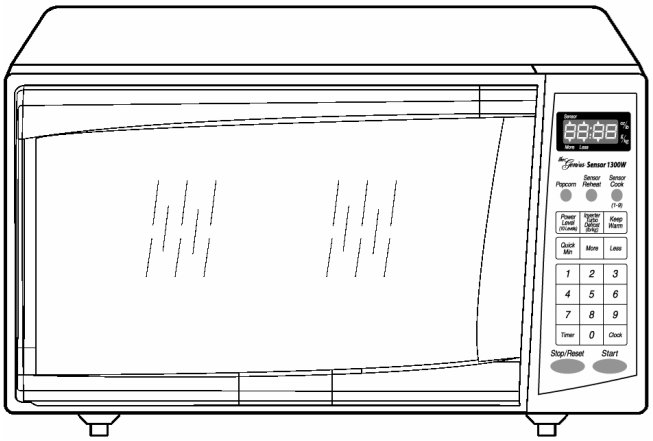
Service Manual

Microwave Oven



NN-T695 NN-T685SF
NN-T675SF NN-T665SF
NN-T655SF NN-T664SFR
NN-H665 NN-S655
NN-H645 NN-S645
NN-H635 NN-S635
NN-H625 NN-S625
NN-S615 NN-S605
NN-S505 NN-S665
NN-H624BFR NN-H624WFR
NN-H504BFR NN-H504WFR

APH(USA)

CPH(CANADA)

RPH(Mexico/Latin American)

Specifications:

	Specifications for APH:							
Model: / Specifications:	T695SF	T685SF T675SF	T665SF T664SFR	H665BF/WF S655BF/WF S645BF/WF/MF H635BF/WF	H645BF/WF	S635BF/WF	T655SF H625BF/WF H624BFR/WFR	S505BF/WF H504BFR/WFR
Power Source:	120V AC Single Phase, 60Hz							
Power Requirement:	1480W	1480W	1480W	1480W	1480W	1480W	1480W	1480W
Output:	1300W	1300W	1300W	1300W	1300W	1300W	1250W	1200W
	Specifications for CPH:							
Specifications: / Model:	T695SF	T685SF	H665BF/WF	S635BF/WF	S615BF/WF	S605BF/WF	S625BF/WF	S505BF/WF
Power Source:	120V AC Single Phase, 60Hz							
Power Requirement:	1480W	1480W	1480W	1480W	1480W	1480W	1480W	1480W
Output:	1200W	1200W	1200W	1200W	1200W	1200W	1200W	1100W
	Specifications for RPH:							
Model: / Specifications:	T695SF T695SM		S655WF T665WM		S645WM			
Power Source:	120V AC Single Phase, 60Hz							
Power Requirement:	1480W		1480W		1480W			
Output:	1250W		1250W		1250W			
Microwave Frequency:	*2450MHz							
Timer:	*99 min. 99 sec.							
Outside Dimensions:	*20 (518mm)(W) x 16"(404mm)(D) x 11"(301mm)(H)							
Oven Cavity Dimensions:	*14 (375mm)(W) x 15"(386mm)(D) x 8"(225mm)(H)							
Weight:	25 lbs/11.2 kg (for "T" series), 24 lbs/10.7 kg (for "H" & "S" series)							
PbF	This product with PbF							
Specifications subject to change without notice.								

Panasonic®

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

WARNING

1. This product should be serviced only by trained, qualified personnel.
2. Though this product has been manufactured in compliance with:
   "Federal Performance Standard 21 CFR Subchapter J"(D.H.H.S): U.S.A. models
   or "Radiation Emitting Devices Act"(Health and Welfare Canada): Canadian models
   it is very important all repairs should be made in accordance with procedures described in this manual to avoid being exposed to excessive microwave radiation.
3. Check for radiation leakage before and after every servicing according to the "procedure for measuring radiation leakage."
4. If the unit cannot be repaired on site, advise the customer not to use until unit is repaired.
5. Any serviceman who learns of any accident pertaining to microwave radiation leakage including the oven operating with open door should immediately notify the appropriate address listed below and Center for Devices and Radiological Health, DHHS.

IN U.S.A. (PASC)	Panasonic Services Company 50 Meadowland Parkway, Secaucus, New Jersey 07094 Attention: Technical Service Division. (201)348-7000	IN PUERTO RICO (PSC)	PSC San Gabriel Industrial Park 65th Infantry Ave. Km.9.5 Carolina, Puerto Rico 00985 (787)750-4300
		IN CANADA (PCI)	Panasonic Canada Inc. 5770 Ambler Drive, Mississauga, Ontario, L4W2T3 (905)624-5010

6. There are special components used in the microwave oven which are important for safety. These parts are marked with a ⚠ on the replacement parts list. It is essential that these critical parts should be replaced only with the manufacture's specified parts to prevent microwave leakage, shock, fire, or other hazards. Do not modify the orginal design.

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(A) Do not operate or allow the oven to be operated with the door open.
(B) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
  (1) Interlock operation
  (2) Proper door closing
  (3) Seal and sealing surfaces (arcing, wear, and other damage)
  (4) Damage to or loosening of hinges and latches.
  (5) Evidence of dropping or abuse
(C) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, waveguide or transmission line, and cavity for proper alignment, integrity and connections.
(D) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
(E) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

CAUTION

About lead free solder (PbF)

Distinction of PbF PCB: PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

Caution:
- Pb free solder has a higher melting point than standard solder; Typically the melting point is 30 - 40˚C higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 370 ± 10˚C.
- Pb free solder will tend to splash when heated too high (about 600˚C).

DANGER OF HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LIVE) OF THE INVERTER POWER SUPPLY (U)

INVERTER WARNING

This Inverter board looks like a regular PCB. However, this PCB drives the magnetron tube with extremely high voltage and high current. NEW H.V.

IT HAS:

1. **Very high voltage and high current circuits.**
   It functions the same as the high voltage transformer and high voltage capacitor in ordinary microwave ovens.
2. **Aluminum heat sink that is energized with very high voltage and high heat energy.**
3. **Very high voltage which may remain in circuitry even when oven is off. High voltage charge may remain in the capacitors on the board.**

DO NOT:

* 1. **Do not touch circuitry because it has very hot (high voltage) circuitry. Even when replacing board, extreme care should be taken to avoid possible electric shock hazards. High voltage charge may remain in circuits.**

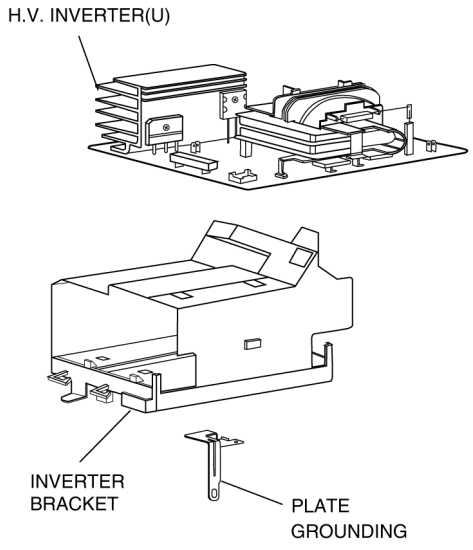
* 2. **Do not touch aluminum heat sink because it is energized with very high voltage and is also very hot in high heat energy.**

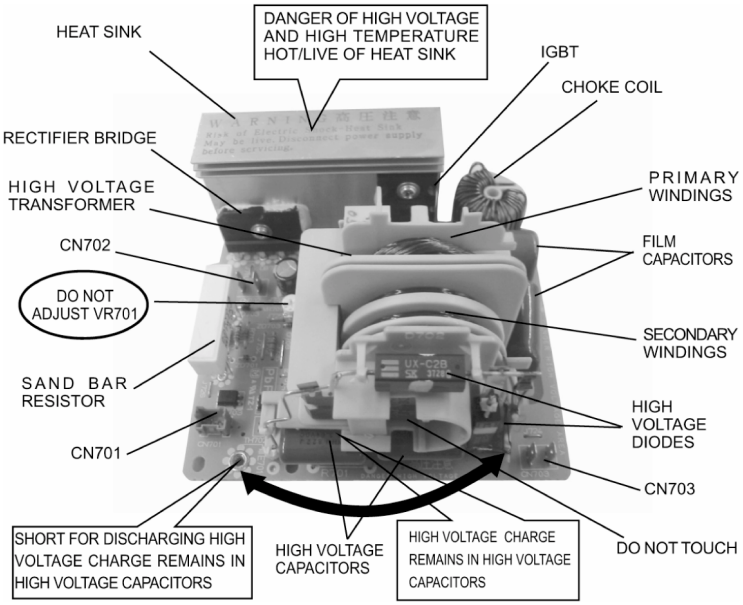
* 3. **Do not try to adjust or tamper with preset control on the Inverter board because it is very dangerous to adjust without proper test equipment.**

* 4. **Do not test oven while Inverter grounding plate or screws are loose. It is very dangerous to operate H.V. Inverter Circuit (U) with loose mounting screws or if improperly grounded.**

* 5. **For USA only:**
Do not try to repair Inverter PCB because it is very dangerous to repair. Replace as a complete High Voltage Inverter Circuit unit and return fully re-packed in original shipping box and shipping materials.

INVERTER POWER SUPPLY





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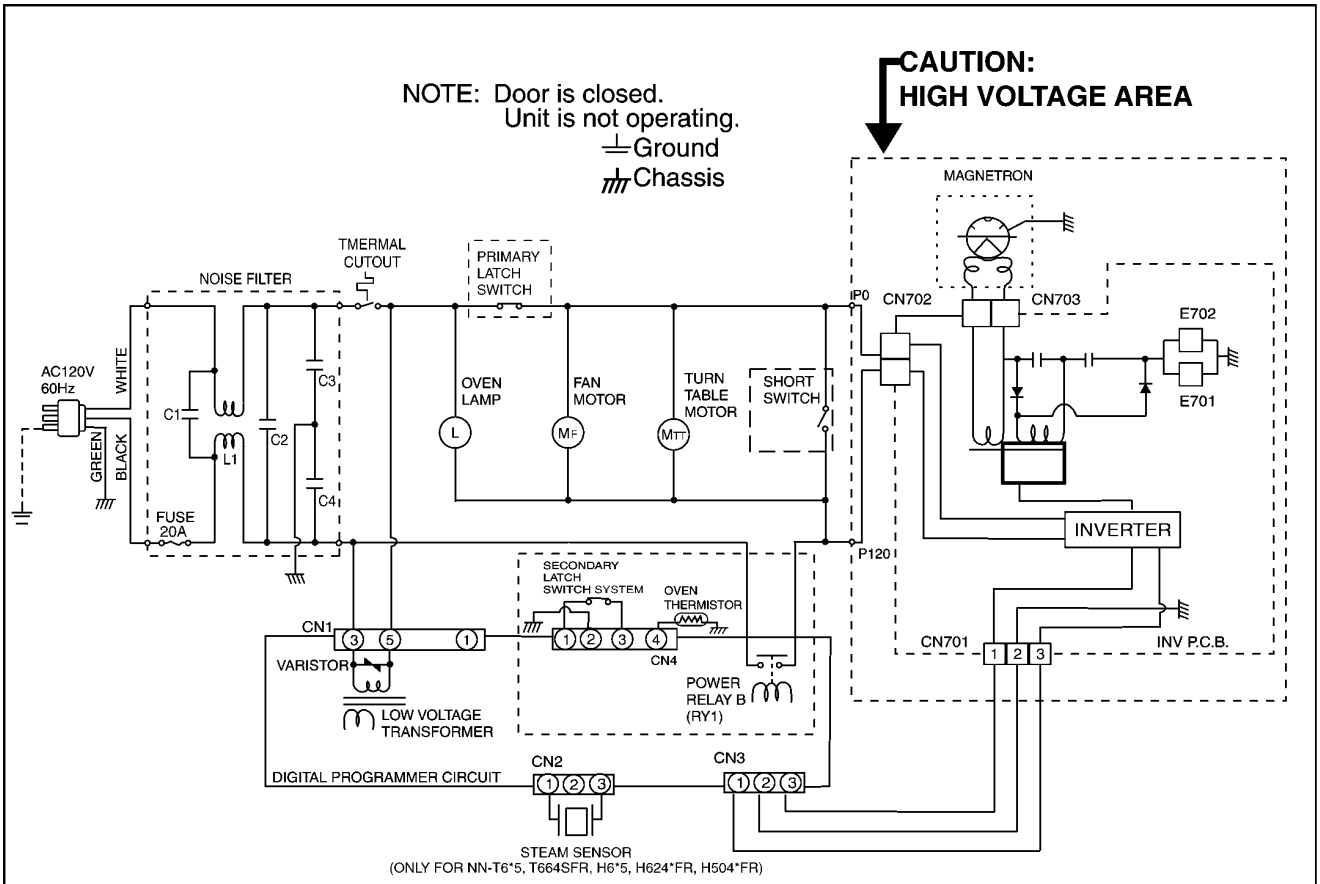
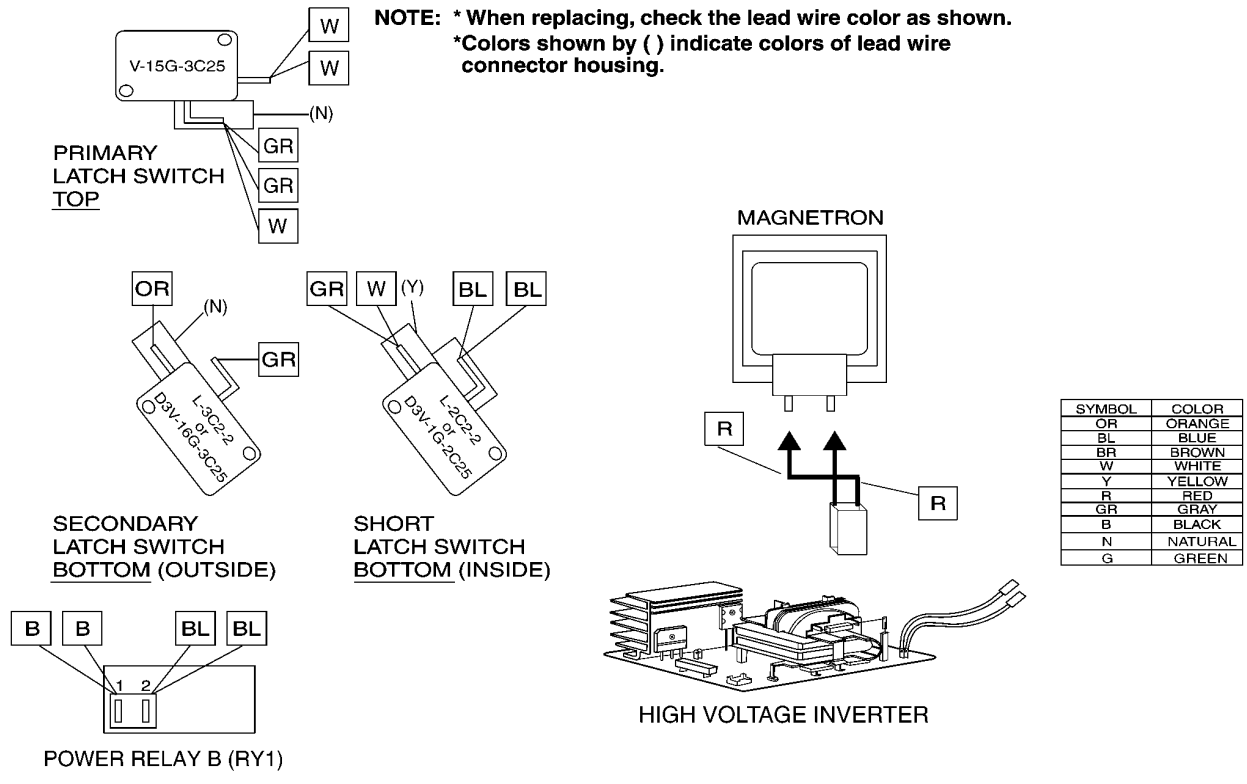
1 SCHEMATIC DIAGRAM

1.1. APH

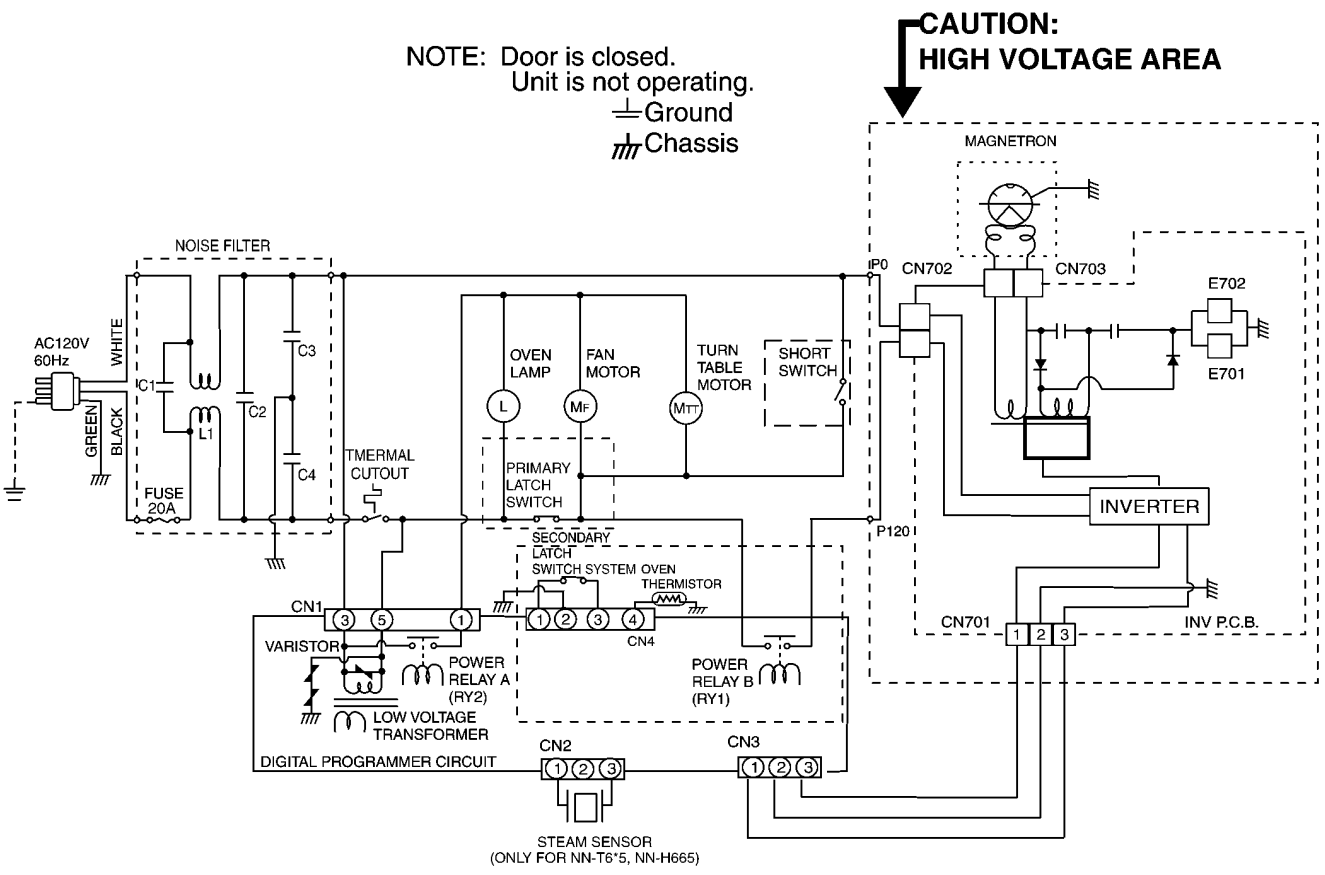


WIRING DIAGRAM

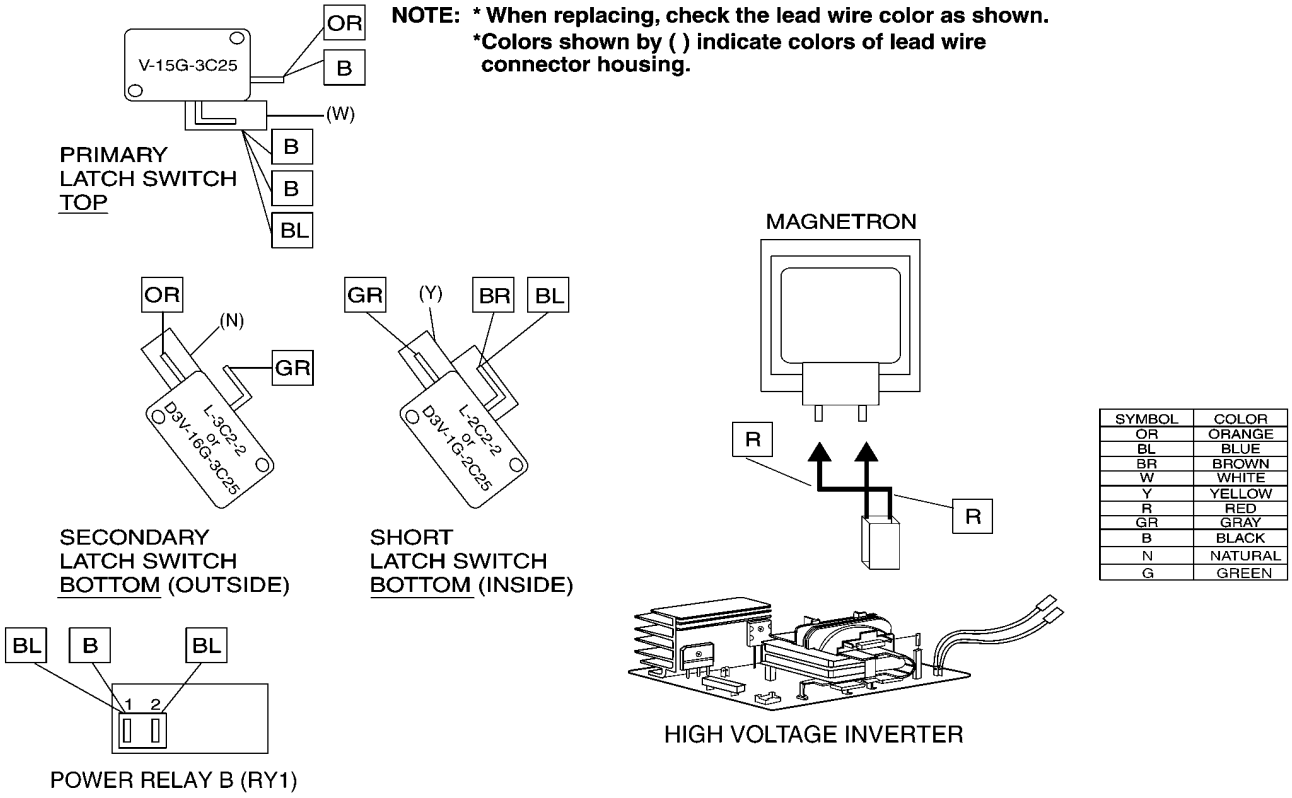


SYMBOL	COLOR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK
N	NATURAL
G	GREEN

1.2. CPH



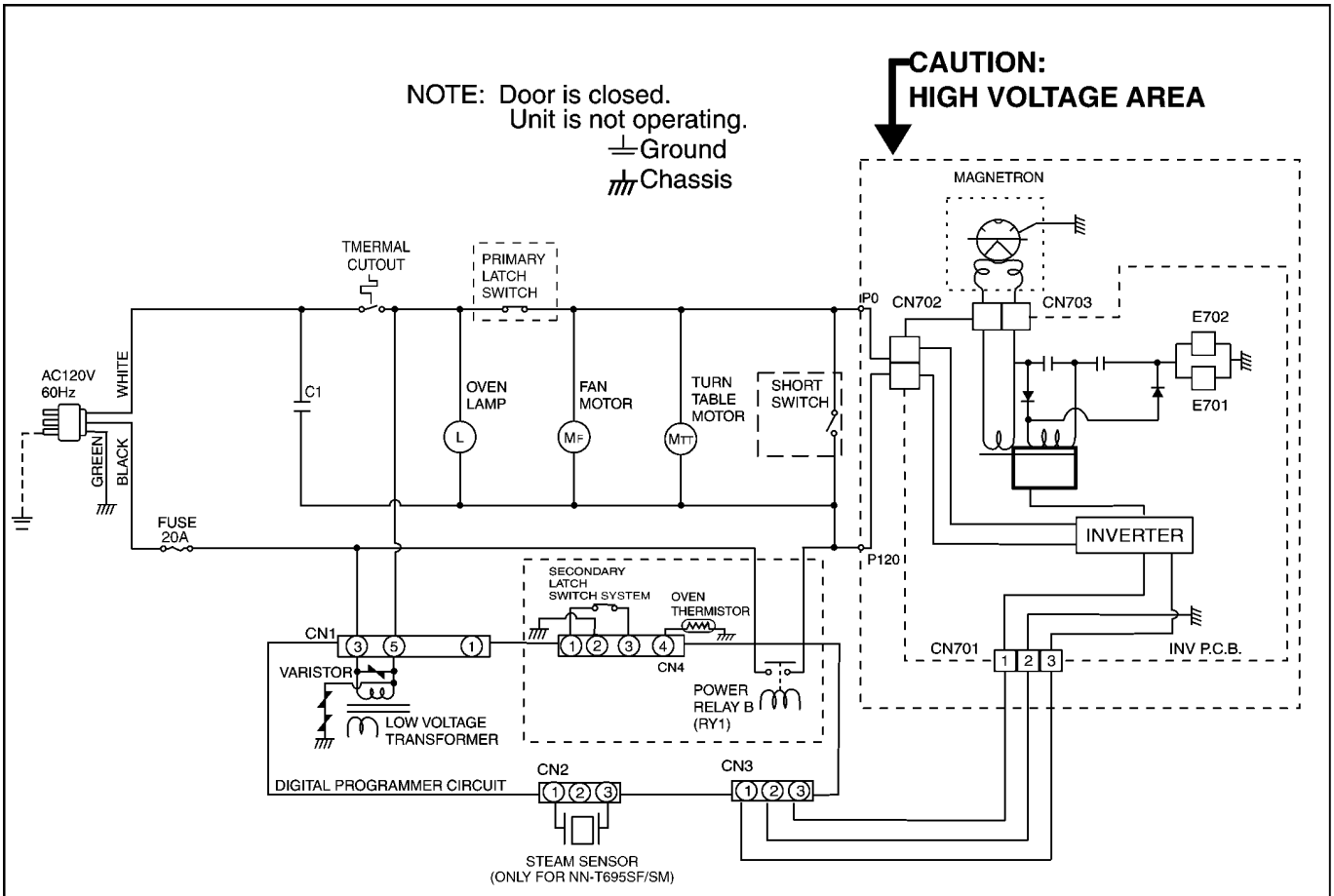
WIRING DIAGRAM



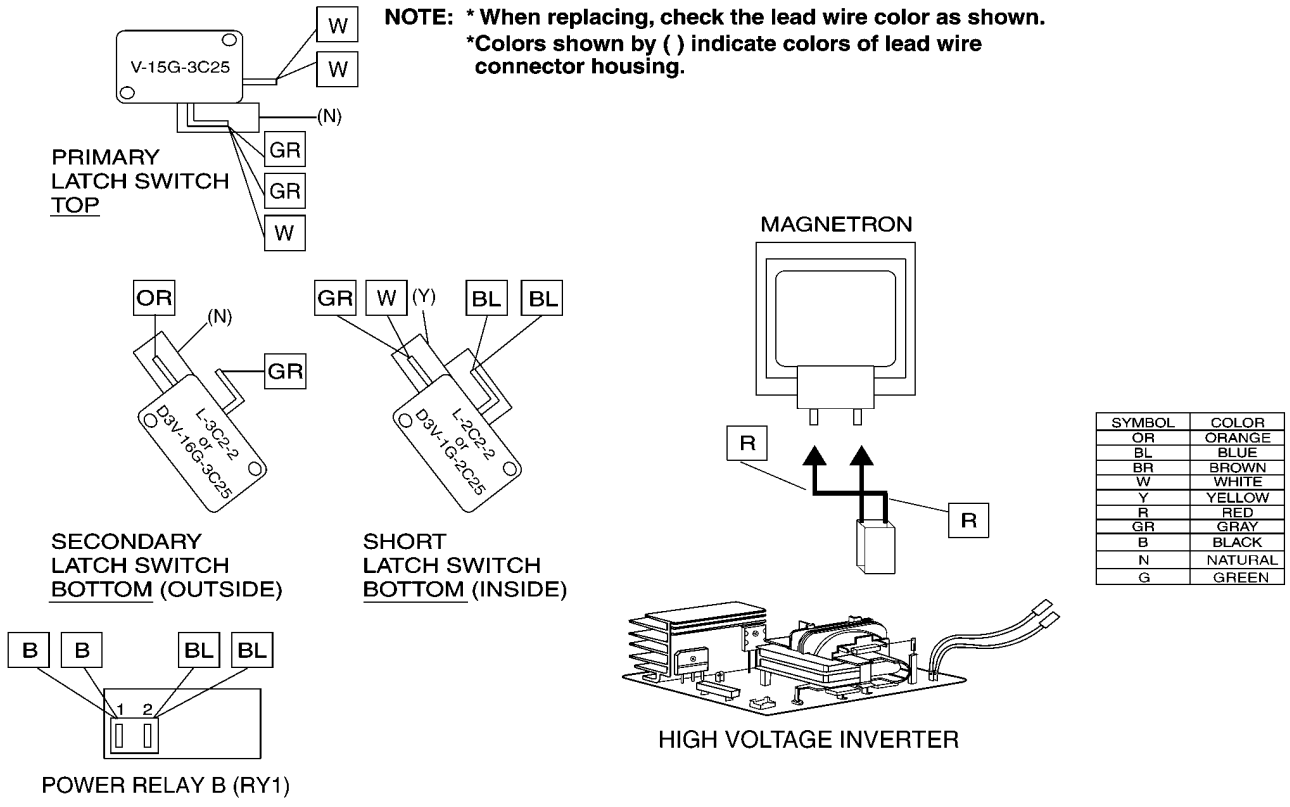
NOTE: * When replacing, check the lead wire color as shown.
***Colors shown by ( ) indicate colors of lead wire connector housing.**

SYMBOL	COLOR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK
N	NATURAL
G	GREEN

1.3. RPH



WIRING DIAGRAM



SYMBOL	COLOR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK
N	NATURAL
G	GREEN

2 DESCRIPTION OF OPERATING SEQUENCE

2.1. Variable power cooking control

High Voltage Inverter Power Supply (U) controls output power by the signal from Digital Programmer Circuit (DPC). Power relay stays ON for P3 to P10 and For P1 to P2, both inverter drive signal and power relay to control output power.

NOTE:

The ON/OFF time ratio does not correspond with the percentage of microwave power since approximately 2 seconds are required for heating of magnetron filament.

Variable Power Cooking

POWER SETTING		OUTPUT POWER(%) APPROX.	ON-OFF TIME OF POWER RELAY (RY1)	
			ON(SEC)	OFF(SEC)
HIGH	P10	100%	22	0
	P9	90%	22	0
	P8	80%	22	0
MEDIUM-HIGH	P7	70%	22	0
MEDIUM	P6	60%	22	0
	P5	50%	22	0
	P4	40%	22	0
MEDIUM-LOW	P3	30%	22	0
	P2	20%	15	7
	P1	10%	8	14
DEFROST	P3	30%	22	0

2.2. Inverter power supply circuit NEW H.V.

The Inverter Power Supply circuit powered from the line voltage, 120V 60Hz AC input supplies 4,000V DC to the magnetron tube, and functions in place ofthe H.V. transformer, the H.V. capacitor and H.V. diode.

1. The AC input voltage 120V 60Hz is rectified to DC voltage immediately.
2. DC voltage will be supplied to the switching devices called IGBT. These devices are switched ON-OFF by the 20 to 40 kHz PWM (pulse width modulation) signal from the microcomputer in the DPC.
3. This drives the High voltage transformer to increase voltage up to 2,000V AC.
4. Then the half-wave doubler voltage rectifier circuit, consisting of the H.V. diodes and capacitors, generates the necessary 4,000V DC needed for the magnetron.
5. Output power of the magnetron tube is always monitored by the signal output from the current transformer built into the inverter circuit.
6. This signal is fed back to the microcomputer in the DPC to determine operating conditions and output necessary to control PWM signal to the Inverter Power Supply for control of the output power.

2.3. Inverter defrost

When the Auto Control feature is selected and the Start pad is tapped:

1. The digital programer circuit determines the power level and cooking time to complete cooking and indicates the operating state in the display window. Table shows the corresponding cooking times for respective serving by categories.

Inverter Turbo Defrost

SELECTED WEIGHT	COOKING TIME
1.0 LB	5 min.00 sec.

2. When cooking time in the display window has elapsed, the oven turns off automatically by a control signal from the digital programmer circuit.

2.4. Sensor cooking (Only for sensor models)

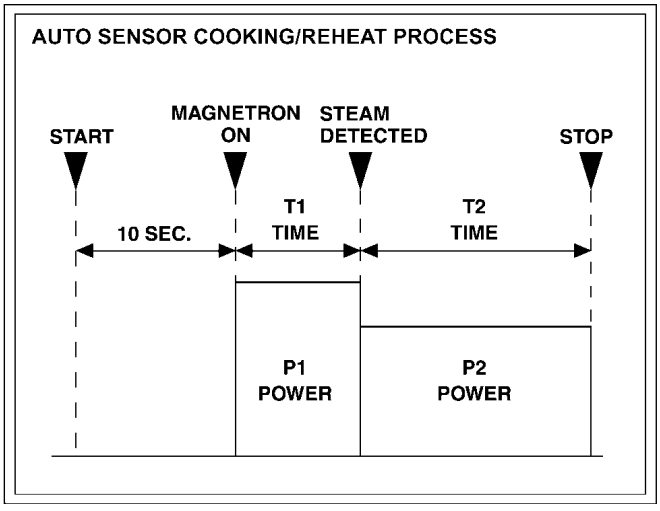
Auto sensor cooking without setting a power level or selecting a time. All that is necessary is to select an Auto Sensor Program before starting to cook.

Understanding Auto Sensor Cooking

As the food cooks, a certain amount of steam is produced. If the food is covered, this steam builds up and eventually escapes from the container. In Auto Sensor Cooking, a carefully designed instrument, called the steam sensor element, senses this escape of steam. Then, based upon the Auto Sensor Program selected, the unit will automatically determine the correct power level and the proper length of time it will take to cook the food.

NOTE:

Auto Sensor Cooking is successful with the foods and recipes found in the Auto Sensor Cooking Guide. Because of the vast differences in food composition, items not mentioned in the Cooking Guide should be prepared in the microwave oven using power select and time features. Please consult Variable Power Microwave Cookbook for procedures.



Explanation of the Auto Sensor Cooking process

1. During the first 10 second period there is no microwave activity. When calculating the T2 time by using the formula below make sure this 10 seconds is subtracted from the T1 time. In other words, T1 time starts at the end of the 10 second period.
2. **T1 time** The total amount of time it takes themicrowave oven to switch to T2 time after the 10second period.
3. **T2 time** When the steam escapes from the cooking container placed in the oven, the steam sensor detects it and the microprocessor calculates the balance of cooking time. This T2 time is then shown in the display and begins counting down.

   Balance of cooking time (T2 time)

   The balance of cooking time which is called T2time, can be calculated by the following formula.
   T2 time (in sec.) = T1 time X K factor

NOTE:

Remember, the T1 time starts after the 10 second period. The coefficient K is programmed into the microprocessor memory and they are listed in the following tables along with the P1 and P2 powers.

NOTE:

When "More" or "Less" pad is selected, the K factor varies resulting in T2 time to be increased or decreased.

Example of calculating the T2 time

Example 1: If the T1 time is measured to be 2 minutes and 40 seconds after the 10 second period, and the Auto program selected is Oatmeal:

T2 = T1 × K

= 2 min. and 40 sec. × 0.1

= 160sec. × 0.1

= 16 sec.

Category	P1 Power	P2 Power	K Factor Standard
Oatmeal	HIGH	HIGH	0.1

2.5. Sensor reheat (Only for sensor models)

Auto Sensor Reheat is a quick and easy way to reheat refrigerated and room temperature foods.

Simply press the reheat pad. There is no need to select power level and cooking time.

NOTE:

The Auto Sensor Reheat process is same as Auto Sensor Cooking process.

Category	P1 Power	P2 Power	K Factor Standard
Sensor Reheat	HIGH	MEDIUM	0.3

2.6. Steam sensor and digital programmer circuit (Only for sensor models)

In order to determine if the steam sensor function of the digital programmer circuit is working, do the following test.

1. Place a water load (150 cc) in the oven.
2. Tap Sensor Reheat pad.
3. Tap Start pad.
4. Steam Sensor detects steam about 1.5 to 4 minutes after the Start pad is tapped.
5. T1 time cooking automatically switches to remaining time for cooking (T2).
6. The remaining cooking time (T2) appears in display window. If the following cooking time appears, Steam Sensor function is normal.

T1 TIME	T2 TIME (Remainingcooking time)
1 Min. 30 Sec. ~ 4 Min.	27 Sec. ~ 1Min.12 Sec.

2.7. Thermistor

The thermistor which fixed on magnetron detects magnetron temperature and make power down when the temperature becomes abnormal high. A normal thermistor´s resistance values for temperature ranges between 75-85 degree F is from 37kΩ to 57kΩ.

3 CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING

Unlike many other appliances, the microwave oven is a high voltage, high current device. It is free from danger in ordinary use, though extreme care should be taken during repair.

Caution

Servicemen should remove their watches whenever working close to or replacing the magnetron.

3.1. Check the grounding

Do not operate on a two wire extension cord. The microwave oven is designed to be grounded when used. It is imperative, therefore, to ensure the appliance is properly grounded before beginning repair work.

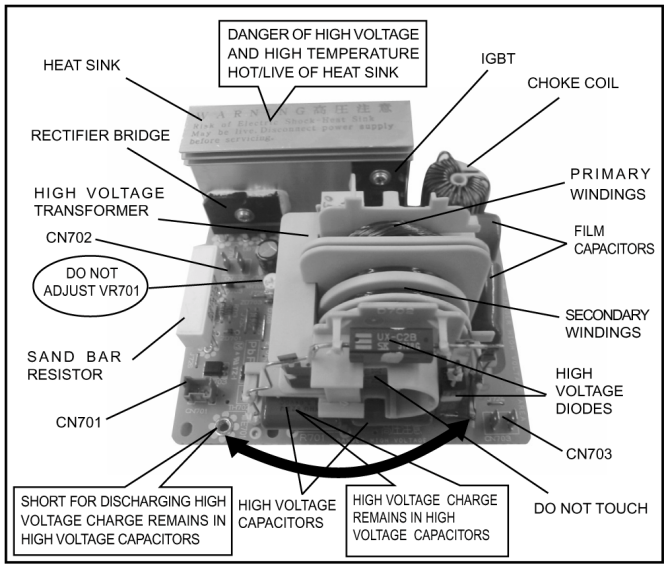
3.2. Inverter warnings

DANGER, HIGH VOLTAGE AND HIGHTEMPERATURE (HOT/LIVE) OF THE INVERTERPOWER SUPPLY (U)

The High Voltage Inverter Power Supply handles very high voltage and current for the magnetron tube. Though it is free from danger in ordinary use, extreme care should be taken during repair.

The aluminum heat sink is also energized with high voltage (HOT), do not touch when the AC input terminals are energized. The power device Collector is directly connected to the aluminum heat sink.

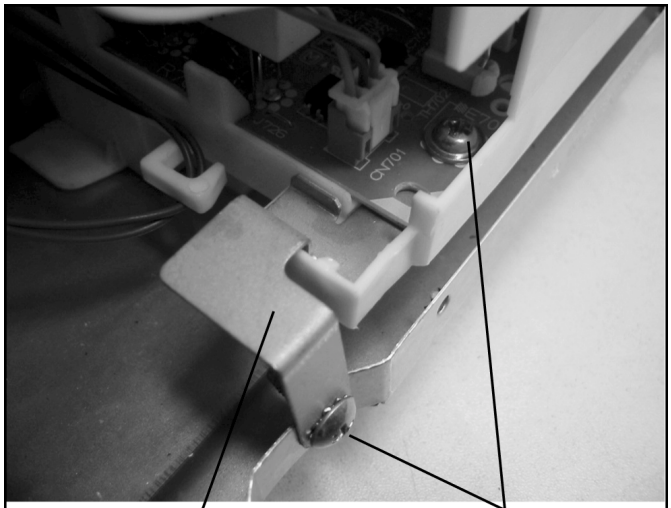
The aluminum heat sink may be HOT due to heat energy, therefore, extreme care should be taken during servicing.



H.V. Inverter warning

WARNING FOR INVERTER POWER SUPPLY (U) GROUNDING

Check the High Voltage Inverter Power Supply circuit grounding. The high voltage inverter power supply circuit board must have a proper chassis ground. The inverter grounding bracket must be connected to the chassis. If the inverter board is not grounded it will expose the user to very high voltages and cause extreme DANGER! Be sure that the inverter circuit is properly grounded via the inverter grounding bracket.

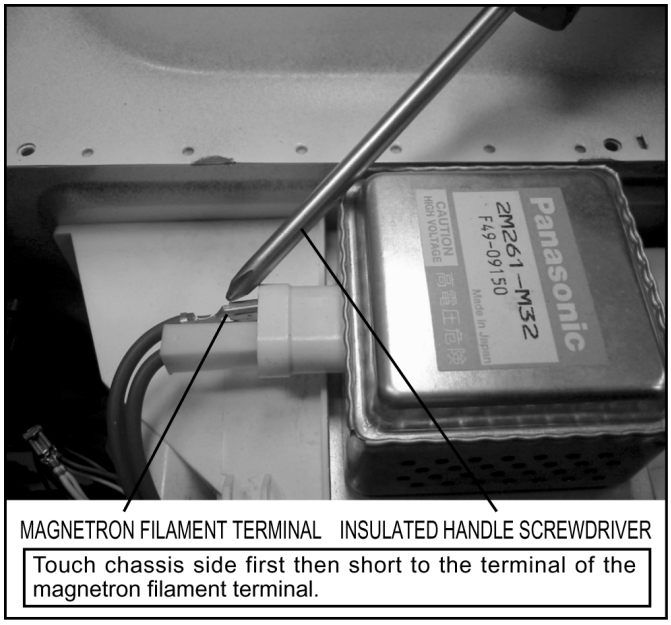


Grounding of the inverter circuit board

WARNING! DISCHARGE THE HIGH VOLATGE CAPACITORS

For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitors in the Inverter Power Supply circuit board.

When replacing or checking parts, remove the power plug from the outlet and short the inverter output terminal of the magnetron filament terminals to the chassis ground with an insulated handle screwdriver to discharge. Please be sure to touch the chassis ground side first and then short to the output terminals.


Panasonic
2M261-M32
MAGNETRON FILAMENT TERMINAL
INSULATED HANDLE SCREWDRIVER
Touch chassis side first then short to the terminal of the magnetron filament terminal.

Discharging the high voltage capacitors

WARNING

There is high voltage present with high current capabilities in the circuits of the primary and secondary windings, choke coil and heat sinkof the inverter. It is extremely dangerous to work on or near these circuits with the oven energized. DO NOT measure the voltage in the high voltage circuit including the filament voltage of the magnetron.

WARNING

Never touch any circuit wiring with your hand or with an insulated tool during operation.

3.3. Part replacement.

When any part or component is to be replaced, always ensure that the power cord is removed from the wall outlet.

3.4. When the 20A fuse is blown due to the operation of the short switch:

WARNING

When the 20A 120V fuse is blown due to the operation of the interlock monitor switch, replace all of the components (primary latch switch, short switch and power relay B (RY1)).

1. This is mandatory. Refer to “adjustments and measurements” for the location of these switches.
2. When replacing the fuse, confirm that it has the appropriate rating for these models.
3. When replacing faulty switches, be sure the mounting tabs are not bent, broken or deficient in their ability to hold the switches.

3.5. Avoid inserting nails, wire etc. through any holes in the unit during operation.

Never insert a wire, nail or any other metal object through the lamp holes on the cavity or any holes or gaps, because such objects may work as an antennaand cause microwave leakage.

3.6. Confirm after repair

1. After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loosen or missing. Microwave might leak if screws are not properly tightened.
2. Make sure that all electrical connections are tight before inserting the plug into the wall outlet.
3. Check for microwave energy leakage. (Refer to procedure for measuring microwave energy leakage).

CAUTION MICROWAVE RADIATION

USE CAUTION NOT TO BECOME EXPOSED TO RADIATION FROM THE MICROWAVE MAGNETRON OR OTHER PARTS CONDUCTING MICROWAVE ENERGY.

IMPORTANT NOTICE

The following components have potentials above 2000V while the appliance is operated.

- Magnetron
- High voltage transformer (Located on inverter (U))
- High voltage diodes (Located on inverter (U))
- High voltage capacitors (Located on inverter (U))

Pay special attention to these areas.

When the appliance is operated with the door hinges or magnetron installed incorrectly, the microwave leakage can exceed more than 5mW/cm2. After repair or exchange, it is very important to check if the magnetron and the door hinges are correctly installed.

3.7. Sharp edges

Caution

Please use caution when unpacking, installing or moving the unit, as some exposed edges may be sharp to the touch and cause injury if not handled with care.

4 DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE

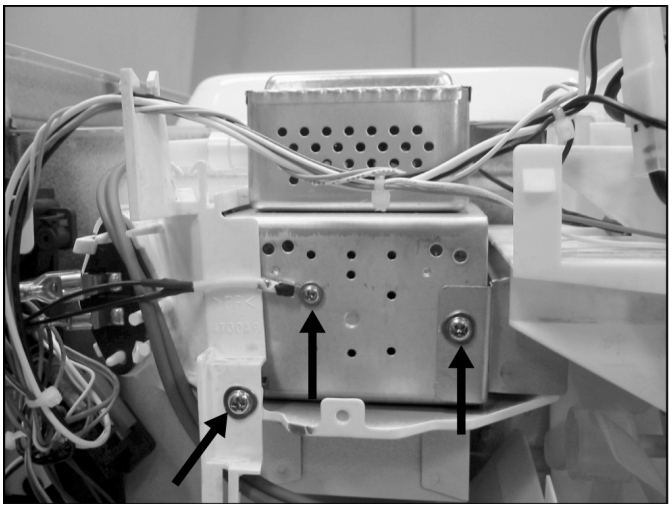
4.1. Magnetron

1. Discharge high voltage charge.
2. Remove 1 screw holding air guide A on the oven cavity.
3. Remove 1 screw holding air guide B.
4. Remove 1 screw holding themistor.
5. Disconnect 2 high voltage lead wires from magnetron filament terminals.
6. Remove 4 screws holding the magnetron.

NOTE:

After replacement of the magnetron, tighten mounting screws properly in an x pattern, making sure there is no gap between the waveguide and the magnetron to prevent microwave leakage.

CAUTION
When replacing the magnetron, be sure the antenna gasket is in place.



4.2. Digital programmer circuit (D.P.C)

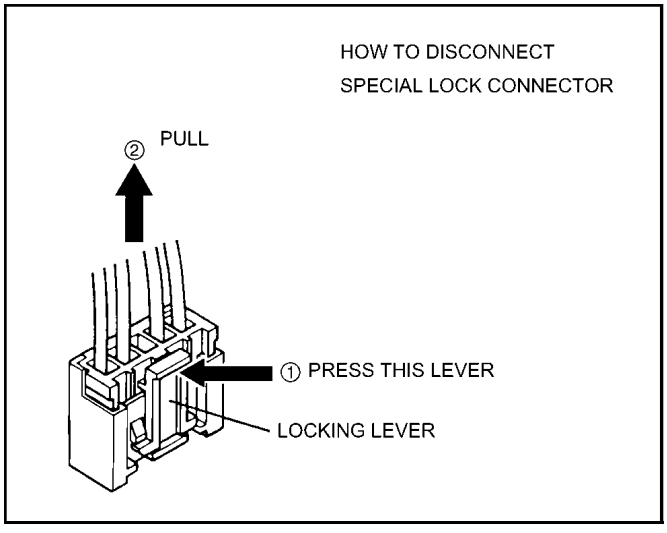
NOTE:

Before handing the D.P.C ensure that your body is connected to ground to discharge any electric charge.

1. Disconnect all connectors from D.P.C.
2. Remove 1 grounding screw.
3. Remove 1 screw holding escutcheon base and slide the escutcheon base upward slightly.
4. Remove 1 screw holding D.P.C.
5. Release lock of connector CN6 by pushing both levers to inside pull upward, and remove flat cable of membrane keyboard.
6. Separate D.P.C board from tabs on the escutcheon base and remove D.P.C board.

NOTE:

1. The membrane key board is attached to the escutcheon base with double faced adhesive tape. Therefore, applying hot air such as using a hair dryer is recommended for smoother removal.
2. When installing new membrane key board, make sure that the surface of escutcheon base is cleaned sufficiently so that any problems (shorted contacts or uneven surface) can be avoided.



4.3. Low voltage transformer and/or power relays (RY1, RY2)

NOTE:

Be sure to ground any static electric charge built up on your body before handling the D.P.C.

1. Replace D.P.C. board.

   (A) Using solder wick or a desoldering tool and 30W soldering iron carefully remove all solder from the terminal pins of the low voltage transformer and/or power relays.

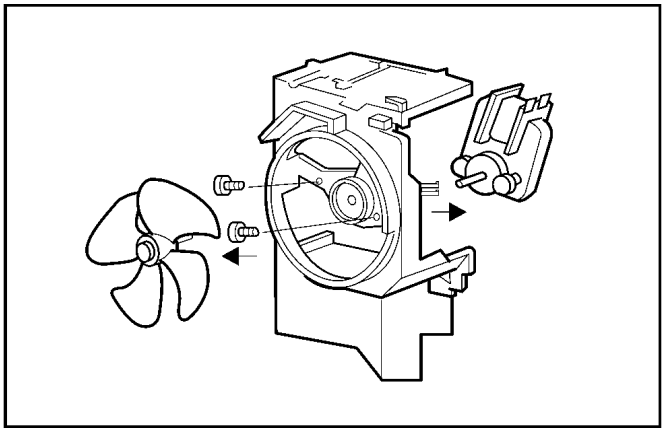
   NOTE:

   Do not use a soldering iron or desoldering tool of more than 30 watts on D.P.C. contacts.

   (B) With all the terminal pins cleaned and separated from D.P.C. contacts, remove the defective transformer/power relays, Replace components making sure all terminal pins are inserted completely resolder all terminal contacts carefully.

4.4. Fan motor

1. Disconnect 2 lead wires from fan motor terminals.
2. Remove 2 screws at location on oven attaching orifice assembly.
3. Remove orifice assembly from oven assembly.
4. Remove fan blade from the fan motor shaft by pulling it straight out.
5. Remove 2 screws holding fan motor to orifice.
6. Separate the fan motor from the orifice assembly by freeing 2 catch hooks on the orifice assembly.



4.5. Door assembly

1. Remove door C from door E by carefully pulling outward, starting from upper right hand corner using a flat blade screwdriver.
2. Separate door E from tabs on door A and remove door A.
3. Open Door E at the opening angle of approximately **10°(Note: The door cannot be removed if the opening angle is greater than 10°).**
4. Remove the door E from its hinges by pushing the door E upward and out.
5. Remove door screen B from door A.
6. Remove door key and door key spring.

To re-install components:

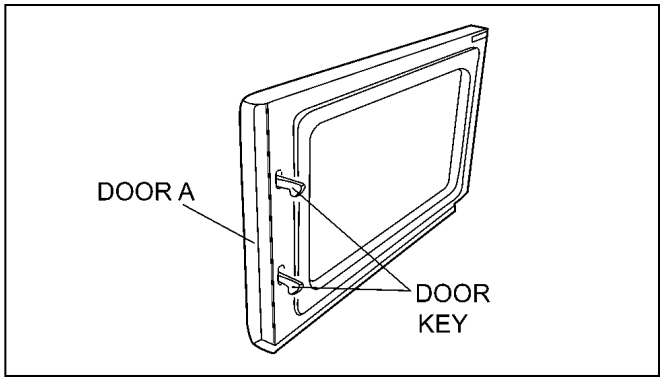
1. Place the door's lower hinge pin into the bottom hinge hole.
2. Use your left index finger to support the door's lower hinge pin while guiding the door's upper hinge pin into the top hinge hole.
3. Lower your finger to seat the door onto the hinges.
4. Replace other components.

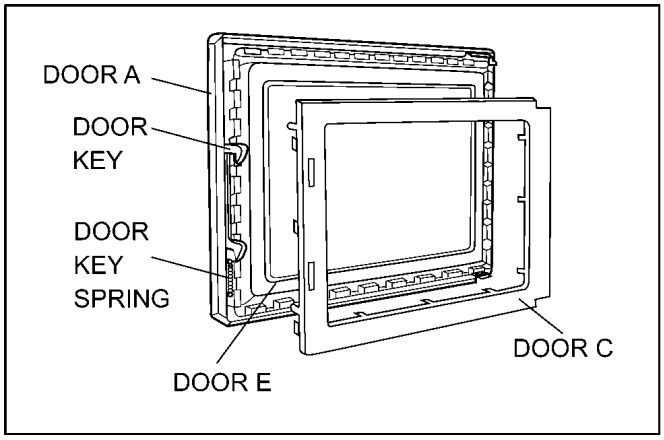
NOTE:

Door alignment is crucial. If door is misaligned, apply pressure until alignment is achieved.

NOTE:

After replacement of the defective component parts of the door, reassemble, and perform microwave leakage test.





4.6. Turntable motor

1. Remove the motor cover by cutting, at the locations indicated by the arrows, with a cutter.

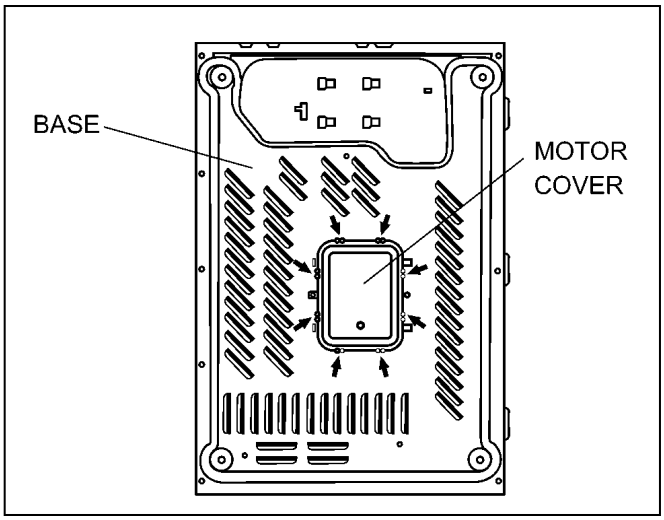
   NOTE:

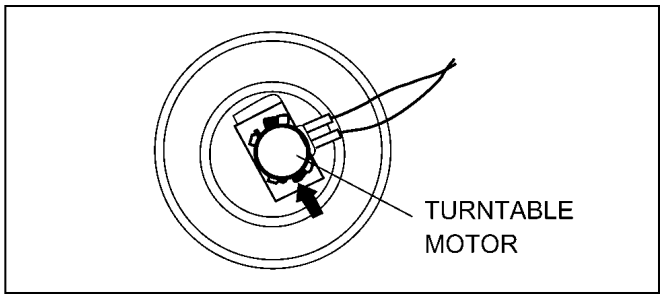
   After removing the motor cover, be sure that cut portions are properly trimmed or bent to the inside so that no sharp edges will be exposed to outside.

2. Disconnect 2 lead wires connected to the turntable motor.
3. Remove the turntable motor by removing screw.

   NOTE:

   After replacing the new turntable motor and reconnecting the two lead wires, reinstall the motor cover by rotating it 180, tucking the tabs into the base in the 2 provided slots, then screw the single tab to the base usinga 4mm × 6mm screw.



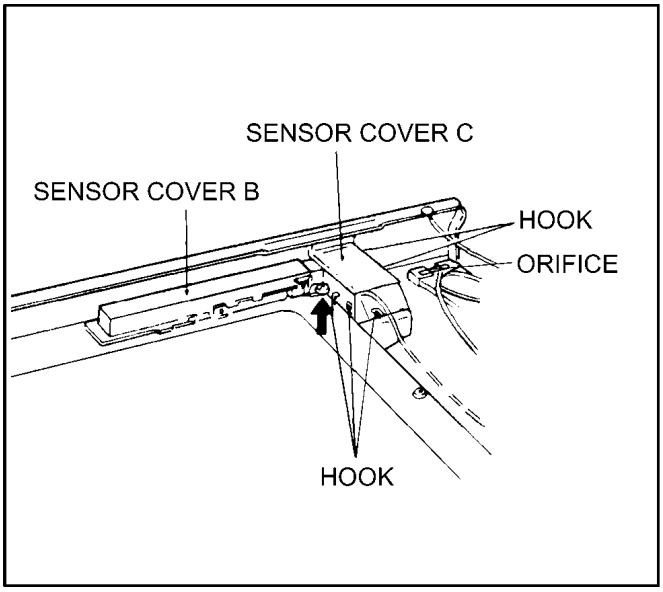


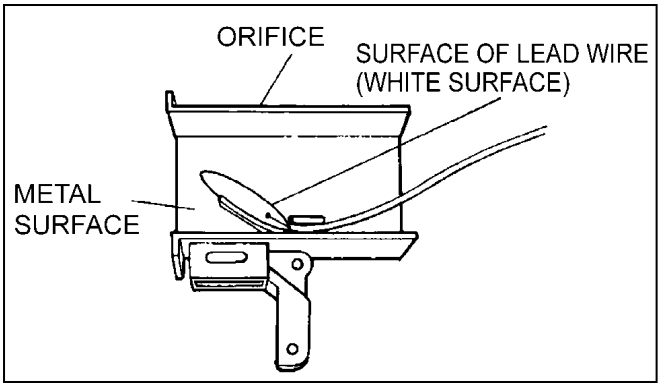
4.7. Steam sensor

1. Disconnect connector CN2 from digital programmer circuit board.
2. Disengage catch hooks on sensor cover C from orifice.
3. Remove steam sensor from orifice.

   NOTE:

   When installing the steam sensor, make sure that the direction of steam sensor is as shown in figure.



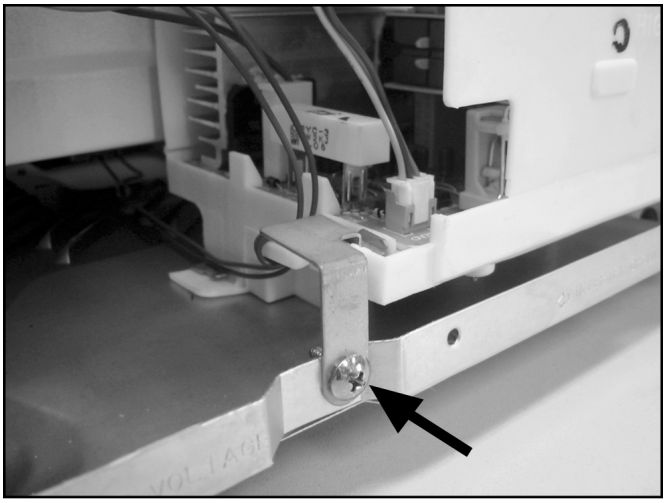


4.8. Inverter power supply

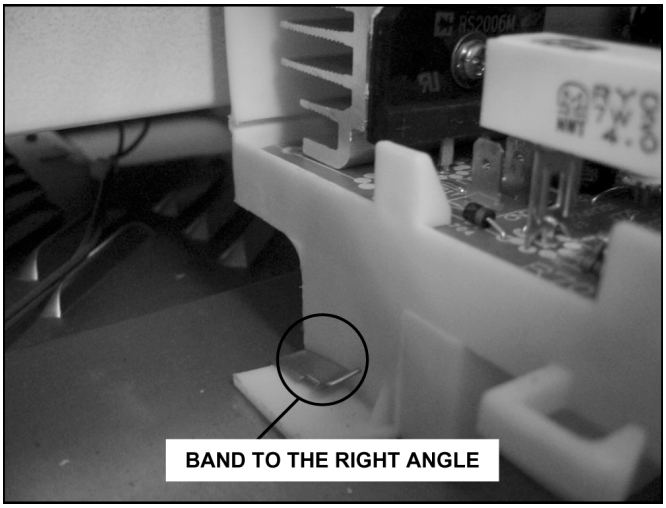
CAUTIONS

1. Always leave the grounding plate in place.
2. Always securely tighten the ground screw through the bottom of the chassis (base).
3. Securely connect 3 lead wire connectors.
4. Make sure the heat sink has enough space (gap) from the oven. Take special care not to dress any lead wire over the aluminum heat sink because it is hot.

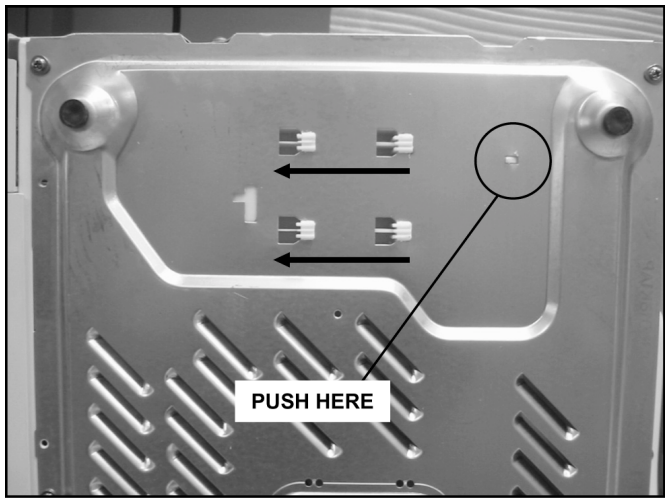
1. Remove cabinet outer panel and discharge high voltage charge.
2. Remove the the H.V.lead wire from magnetron terminals.
3. Disconnect 2 connectors from CN701 & CN702 on H.V.Inverter(U).
4. Remove 1 screw holding grounding plate to the base.



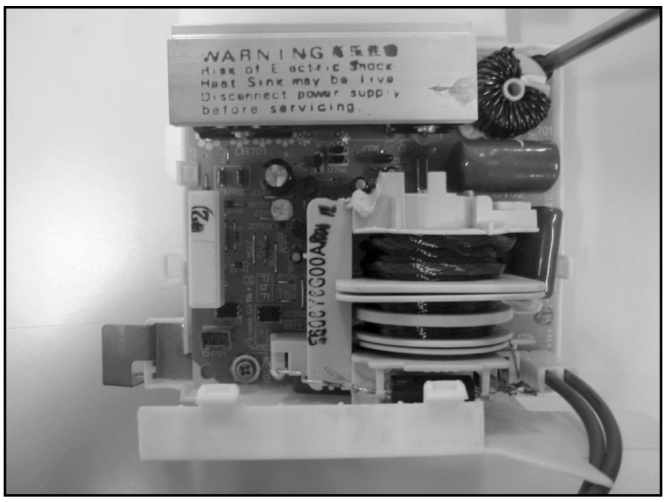
5. Bend back 1 locking metal tab on the base.



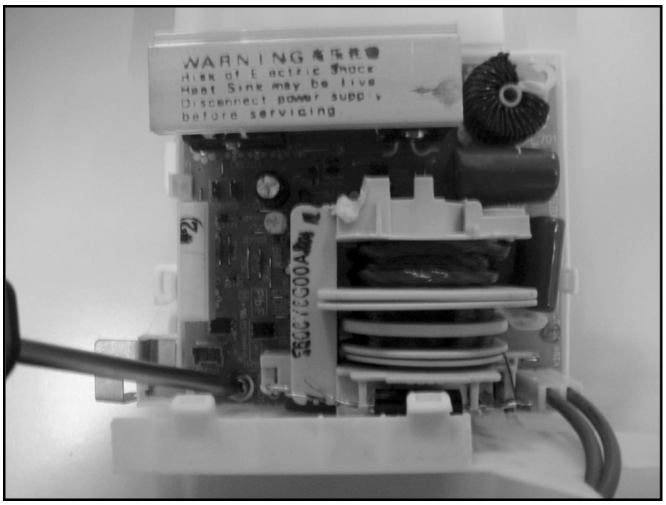
6. Press 1 encircled locking tab and then slide 4 locking tabs of Inverter bracket at the bottom of the base in direction of arrows.



7. Remove 1 screw holding H.V.Inverter to Inverter bracket.



8. Remove 1 screw holding grounding plate to H.V. Inverter.



9. Seperate H.V. Inverter from Inverter bracket by freeing 3 catch hooks on the Inverter bracket.

5 COMPONENT TEST PROCEDURE

CAUTION NEW. H.V.

1. High voltage is present at the high voltage terminal of the High Voltage Inverter (U) including aluminum heat sink during any cook cycle.
2. It is neither necessary nor advisable to attempt measurement of the high voltage.
3. Before touching any oven components, or wiring, always unplug the oven from its power source and discharge the high voltage capacitors.

5.1. Primary latch switch (door switch and power relay B) interlocks.

1. Unplug lead connectors to Power Relay B and verify open circuit of the power relay B 1-2terminals.
2. Unplug lead connectors to Primary Latch Switch and Door Switch.
3. Test the continuity of switches at door opened and closed positions with ohm meter (low scale).

   Normal continuity readings should be as follows.

	Door Closed	Door Opened
Primary Latch switch	0Ω (Close)	∞Ω(Open)
Door Switch	0Ω (Close)	∞Ω(Open)
Power Relay B	∞Ω (Close)	∞Ω(Open)

5.2. Short switch & monitor

1. Unplug lead wires from Inverter Power Supply (U) primary terminals.
2. Connect test probes of ohm meter to the disconnected leads which were connected to Inverter Power Supply (U).
3. Test the continuity of short switch with door opened and closed positions using lowest scale of the ohm meter.

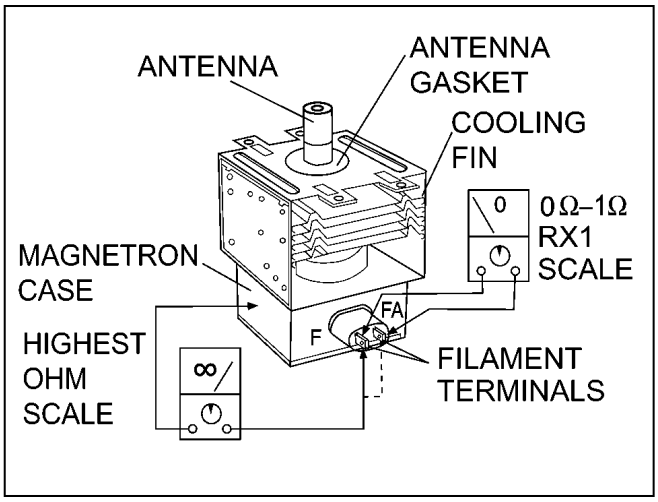
   Normal continuity readings should be as follows.

Door Opened	Door Closed
0Ω	∞Ω

5.3. Magnetron

Continuity checks can only indicate an open filament or a shorted magnetron. To diagnose for an open filament or shorted magnetron.

1. Isolate magnetron from the circuit by disconnecting the leads.
2. A continuity check across magnetron filament terminals should indicate one ohm or less.
3. A continuity check between each filament terminal and magnetron case should read open.

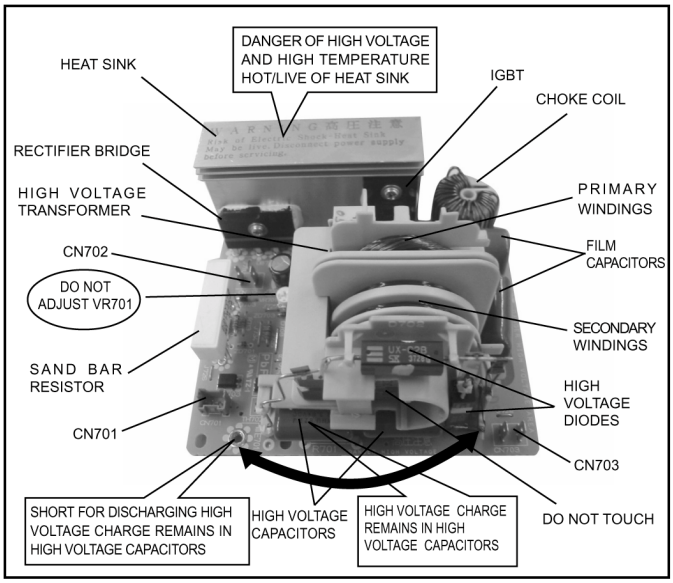


5.4. Membrane key board (Membrane switch assembly)

Check continuity between switch terminals, by tapping an appropriate pad on the key board. The contacts assignment of the respective pads on the key board is as shown in digital programmer circuit. (Refer to Mini Manual)

5.5. Inverter power supply (U)

DO NOT try to REPAIR H.V. Inverter power supply (U).Replace complete H.V. Inverter(U) Unit.



DANGER HIGH VOLTAGE

Test if failure codes of H97 or H98 appear by doing the following procedure. It is recommended to use an AC line input current Ampere meter for testing.

Test1

1. Program DPC.
   a. Tap Clock Keypad
   b. Tap Timer Keypad
   c. Tap Start Keypad
   d. Tap Power Level Keypad
2. Place 1 liter of water load into oven cavity.
3. Unplug 2 pin H.V. lead wire connector CN703 from magnetron tube.
4. Program oven at High power for 1 minute and press start.
   a. After approximately 23 seconds, oven stops.
   b. During oven operation, input current is approximately 0.5 to 1A. If both a and b are OK, proceed to test 2.

	INPUT AMPERE	FAILURE CODE
Unplug CN703	0.5 to 1A	Oven stops in 23 seconds after started.

Test2

Continued from Test 1

1. Unplug 3 pin connector CN701. CN703 remains unplugged.
2. Program oven at High power for 1 minute and press start.
   a. After approximately 3 seconds, oven stops.
   b. During oven operation, input current is approximately 0.4A.

	INPUT AMPERE	FAILURE CODE
Unplug CN701	<0.4A	Oven stops in 3 seconds after started.

If both a and b check OK, the Inverter Power Supply (U) can be determined to be OK.

6 MEASUREMENTS AND ADJUSTMENTS

WARNING

* For continued protection against radiation hazard, replace only with identical replacement parts (For touch models Part No. J61424T00AP, Type No. V-15G-3C25 for Primary latch switch; Part No. J61414T00AP, Type No. D3V-16G-3C25 for Secondary latch switch and Part No. J61784T00AP, Type No. D3V-1G-2C25 for short switch.)
* When the 20 Amp. fuse is blown due to the operation of the short switch, you must replace power relay B (Part No. AEGG5G1A18, Type No. G5G-1A12VDC), Primary latch switch and the short switch. Then follow the installation procedures below.
* Interlock switch replacement In replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.
* Refer to schematic diagram to ensure proper connection.

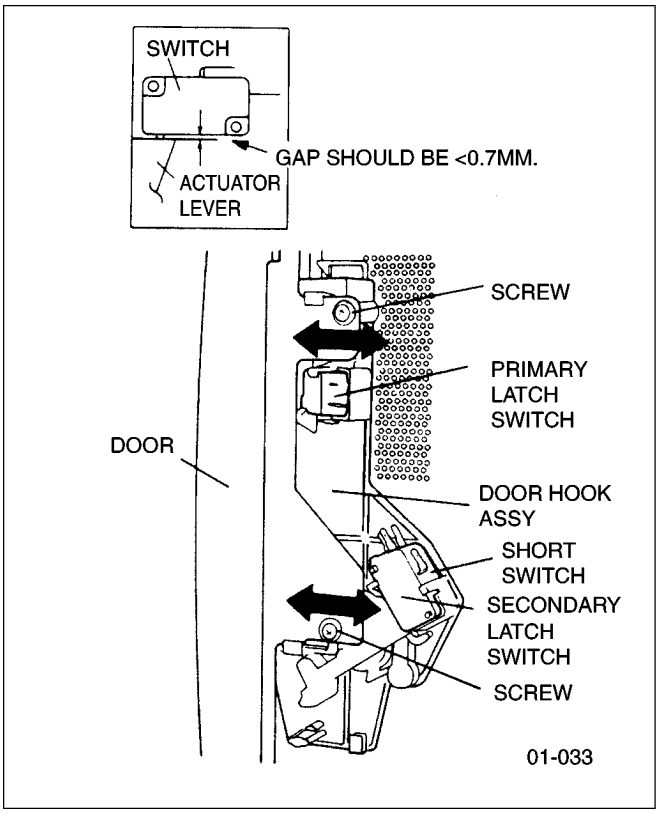
6.1. Adjustment of primary latch switch, secondary latch switch and short switch.

1. Mount the Primary latch switch, the Secondary latch switch and the Short switch to the door hook assembly as shown in ILL.

   NOTE:

   No specific individual adjustments during installation of the Primary latch switch, Secondary latch switch or Short switch to the door hook are required.

2. When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of the arrows in the illustration so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the door hook assembly to the oven assembly.
3. Reconnect the short switch and check the continuity of the monitor circuit and all latch switches again by following the component test procedures.



6.2. Measurement of microwave output

The output power of the magnetron can be determined by performing IEC standard test procedures. However,due to the complexity of IEC test procedures, it is recommended to test the magnetron using the simple method outlined below.

Necessary Equipment:

*1 liter beaker *Glass thermometer
*Wrist watch or stopwatch

NOTE:

Check the line voltage under load.Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurately as possible.

1. Fill the beaker with exactly one liter of tap water.Stir the water using the thermometer and record the water's temperature. (recorded as T1).
2. Place the beaker on the center of glass tray.
   Set the oven for High power and heat it for exactly one minute.
3. Stir the water again and read the temperature of the water. (recorded as T2).
4. The normal temperature rise at High power level for each model is as shown in table.

TABLE (1L-1min.test)

RATED OUTPUT	TEMPERATURE RISE
1100W	Min. 16.9°F(9.4°C)
1200W	Min. 18.5°F(10.3°C)
1300W	Min. 19.8°F(11.1°C)

7 PROCEDURE FOR MEASURING MICROWAVE ENERGY LEAKAGE

WARNING

Check for radiation leakage after every servicing. Should the leakage be more than 2 mW/cm² (1mW/cm² for Canada) inform PASC, PSC, or PCI immediately. After repairing or replacing any radiation safety device, keep a written record for future reference, as required by D.H.H.S. and Health and Welfare Canada regulation. This requirement must be strictly observed. In addition, the leakage reading must be recorded on the service repair ticket while in the customer's home.

NOTE:

The U.S. Government standard is 5 mW/cm^2 while in the customer's home. 2mW/cm^2 stated here is our own voluntary standard. (1mW/cm^2 for Canada)

7.1. Equipment

- Electromagnatic radiation monitor
- Glass thermometer 212°F or 100°C
- 600cc glass beaker

7.2. Procedure for measuring radiation leakage

Note before measuring.

- Do not exceed meter full scale deflection. Leakage monitor should initially be set to the highest scale.
- To prevent false readings the test probe should be held by the grip portion of the handle only and moved along the shaded area in Figure no faster than 1 inch/sec (2.5cm/sec).
- Leakage with the outer panel removed ..... less than 5mW/cm^2.
- Leakage for a fully assembled oven with door normally closed ..... less than 2mW/cm^2 (1mW/cm^2 for Canada).
- Leakage for a fully assembled oven [Before the latch switch (primary) is interrupted] while pulling the door ..... less than 2mW/cm^2.

1. Pour 275 ± 15cc (9ozs^S± 1/2oz) of 20°C ± 5°C (68° ± 9°F) water in a beaker which is graduated to 600cc, and place in the center of the oven.
2. Set the radiation monitor to 2450MHz and use it following the manufacturer´s recommended test procedure to assure correct results.
3. When measuring the leakage, always use the 2 inch (5cm) spacer supplied with the probe.
4. Tap the start pad or set the timer and with the magnetron oscillating, measure the leakage by holding the probe perpendicular to the surface being measured.

7.2.1. Measurement with the outer panel removed.

Whenever you replace the magnetron, measure for radiation leakage before the outer panel is installed and after all necessary components are replaced or adjusted. Special care should be taken in measuring around the magnetron.

WARNING

Avoid contacting any high voltage parts.

7.2.2. Measurements with a fully assembled oven.

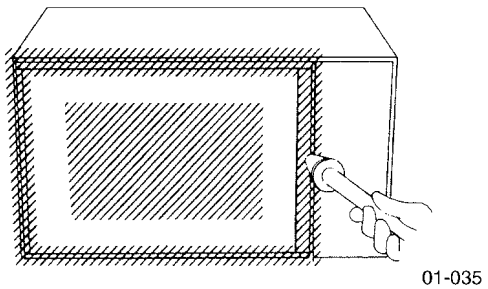
After all components, including outer panel are fully assembled, measure for radiation leakage around the door periphery, the door viewing window, the exhaust opening and air inlet openings.

7.3. Record keeping and notification after measurement

- After any adjustment or repair to a microwave oven, a leakage reading must be taken. Record this leakage reading on the repair ticket even if it is zero.

  A copy of this repair ticket and the microwave leakage reading should be kept by repair facility.
- Should the radiation leakage be more than 2 mW/cm^2 (1mW/cm for Canada) after determining that all parts are in good condition, functioning properly, and genuine replacement parts as listed in this manual have been used, immediately notify PASC, PSC or PCI.

7.4. At least once a year, have the radiation monitor checked for calibration by its manufacturer.



MOVE PROBE ALONG SHADED AREA(//////)AROUND EXHAUST OPENINGS AND AROUND AIR INLET OPENING

8 TROUBLESHOOTING GUIDE

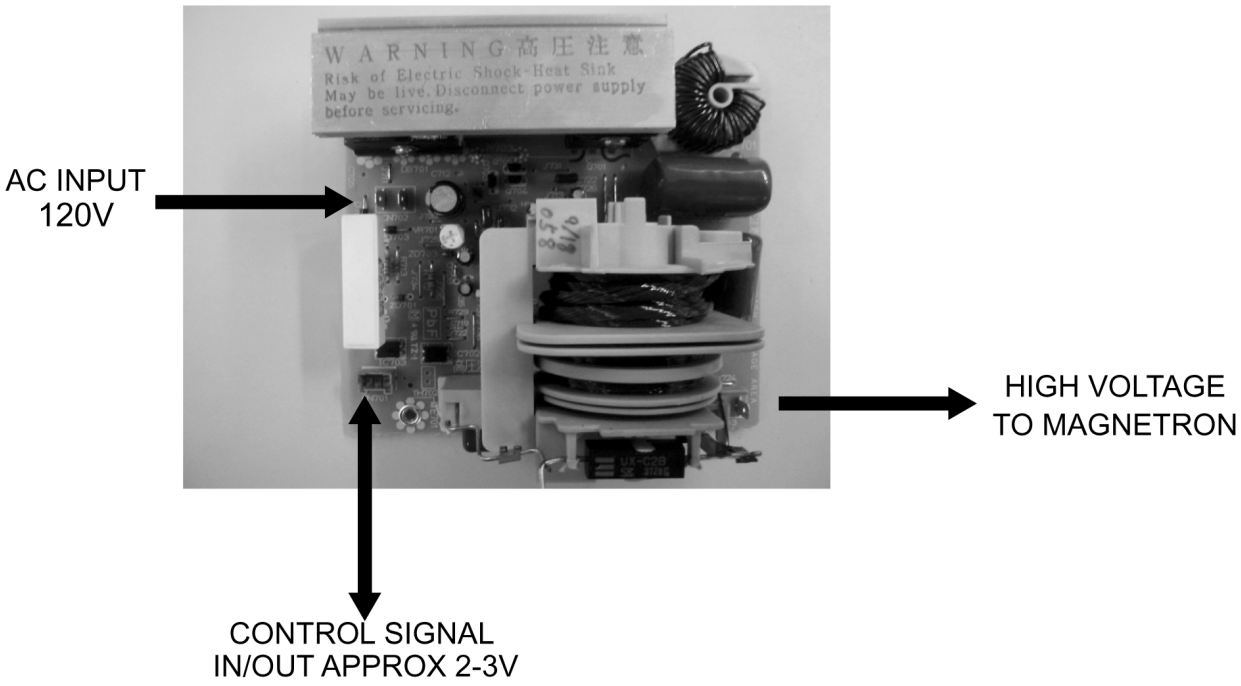
DANGER HIGH VOLTAGES ⚠

1. **DO NOT RE-ADJUST PRESET CONTROL on the H.V.Inverter (U).** It is very dangerous to repair or adjust without proper test equipment because this circuit handles very large current and high voltage. Operating a misaligned inverter circuit is dangerous.
2. Ensure proper grounding before checking for trouble.
3. Be careful of the high voltage circuitry, taking necessary precautions when troubleshooting.
4. Discharge high voltage remaining in the H.V.Inverter (U).
5. When checking the continuity of the switches or the H.V.Inverter, disconnect one lead wire from these parts and then check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter. When disconnecting a plastic connector from a terminal, you must hold the plastic connector instead of the lead wire and then disconnect it, otherwise lead wire may be damaged or the connector cannot be removed.
6. Do not touch any parts of the circuitry on the digital programmer circuit, since static electric discharge may damage this control panel. Always touch yourself to ground while working on this panel to discharge any static charge in your body.
7. 120V AC is present on the digital programmer circuit (Terminals of power relay's and primary circuit of Digital Programmer Circuit). When troubleshooting, be cautious of possible electrical shock hazard.

Before troubleshooting, operate the microwave oven following the correct operating procedures in the instruction manual in order to find the exact cause of any trouble, since operator error may be mistaken for the oven's malfunction.

8.1. (Trouble) Oven stops operation during cooking

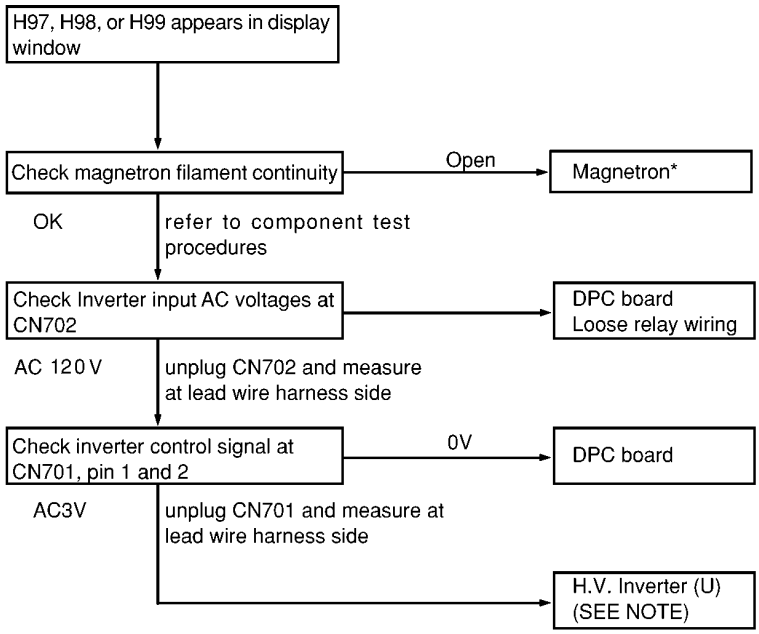
	SYMPTOM	CAUSE	CORRECTIONS
1.	**Oven stops in 3 seconds** after pressing start pad	No 120V AC is supplied to H.V.Inverter (U) CN702 terminals	1. Latch Switch 2. Power relay RY-1 3. Loose lead wire connector CN701, CN702
	Oven stops in 23 seconds after pressing start pad	H.V.Inverter (U) operates by the control signals from DPC but magnetron is not oscillating	1. Magnetron 2. Loose lead wire connector CN703
	Oven stops in 10 seconds after pressing start pad (Auto sensor cooking)	Steam sensor circuit does not function	1. Steam sensor 2. DPC 3. Loose wiring connector CN2
2.	No display and no operation at all. Fuse is blown.	Most probably loose connection of connectors, or door latch mechanism is not adjusted properly	1. Allign door, Door Latch Switches 2. Loose wiring connectors



	SYMPTOM	CAUSE	CORRECTIONS
1.	Oven is dead. Fuse is OK. No display and no operation at all.	1. Open or loose lead wire harness 2. Open thermal cutout 3. Open low voltage transformer 4. Defective DPC	Check fan motor if thermal cutout is defective.
2.	No display and no operation at all. Fuse is blown.	1. Shorted lead wire harness 2. Defective primary latch switch (NOTE 1) 3. Defective short switch (NOTE 1) 4. Defective Inverter Power Supply (U)	Check adjustment of primary, secondary latch switch and short switch including door.
		NOTE 1: All of these switches must be replaced at the same time. Check continuity of power relay B (RY-1)´s contacts (between 1 and 2) and if it has continuity, replace power relay B (RY-1) also.	
3.	Oven does not accept key input(Program)	1. Key input is not in proper sequence 2. Open or loose connection of membrane key pad to DPC (Flat cable) 3. Shorted or open membrane key board 4. Defective DPC	Refer to operation procedure. Refer to DPC troubleshooting.
4.	Fan motor turns on when oven is plugged in with door closed.	1. Misadjustment or loose wiring of secondary latch switch 2. Defective secondary latch switch	Adjust door and latch switches.
5.	Timer starts count down but no microwave oscillation. (No heat while oven lamp and fan motor turn on)	1. Off-alignment of latch switches 2. Open or loose connection of high voltage circuit especially magnetron filament circuit NOTE: Large contact resistance will cause lower magnetron filament voltage and cause magnetron to have lower output and/or be intermittent. 3. Defective high voltage component H.V. Inverter Power Supply (u) Magnetron 4. Open or loose wiring of power relay B (RY-1) 5. Defective primary latch switch 6. Defective DPC or power relay B (RY-1)	Adjust door and latch switches. Check high voltage component according to component test procedure and replace if it is defective. Refer to DPC troubleshooting
6.	Oven can program but timer does not start countdown.	1. Open or loose wiring of secondary latch switch 2. Off-alignment of secondary latch switch 3. Defective secondary latch switch	
7.	Microwave output is low. Oven takes longer time to cook food.	1. Decrease in power source voltage 2. Open or loose wiring of magnetron filament circuit.(Intermittent oscillation) 3. Aging change of magnetron	Consult electrician
8.	Fan motor turns on and turntable rotates when door is opened.	1. Shorted primary latch switch	
9.	Oven does not operate and return to plugged in mode as soon as start pad is pressed.	1. Defective DPC	Check tighten screws on escutcheon base bracket, D.P.C. board.
10.	Loud buzzing noise can be heard.	1. Loose fan and fan motor	
11.	Turntable motor does not rotate.	1. Open or loose wiring of turntable motor 2. Defective turntable motor	
12.	Oven stops operation during cooking.	1. Open or loose wiring of primary and secondary latch switch 2. Operation of thermal cutout	Adjust door and latch switches.
13.	Oven returns to plugged in mode after 10 seconds elapses on the Auto sensor cooking mode.	1. Open or loose wiring of sensor terminal from DPC 2. Open steam sensor 3. Defective DPC	

8.2. Troubleshooting of inverter circuit (U) and magnetron NEW H.V.

This oven is programmed with a self diagnostics failure code system which will help for troubleshooting. H97, H98, and H99 are the provided failure codes to indicate magnetron and inverter circuit problem areas. This section explains failure codes of H97, H98, and H99. First, you must program the DPC by pressing Clock , Timer , Start , Power Level . Program unit for operation. H97, H98, H99 appears in display window a short time after start key is pressed and there is no microwave oscillation.


H97, H98, or H99 appears in display window
Check magnetron filament continuity
Open
Magnetron*
OK
refer to component test procedures
Check Inverter input AC voltages at CN702
DPC board
Loose relay wiring
AC 120 V
unplug CN702 and measure at lead wire harness side
Check inverter control signal at CN701, pin 1 and 2
0V
DPC board
AC3V
unplug CN701 and measure at lead wire harness side
H.V. Inverter (U) (SEE NOTE)

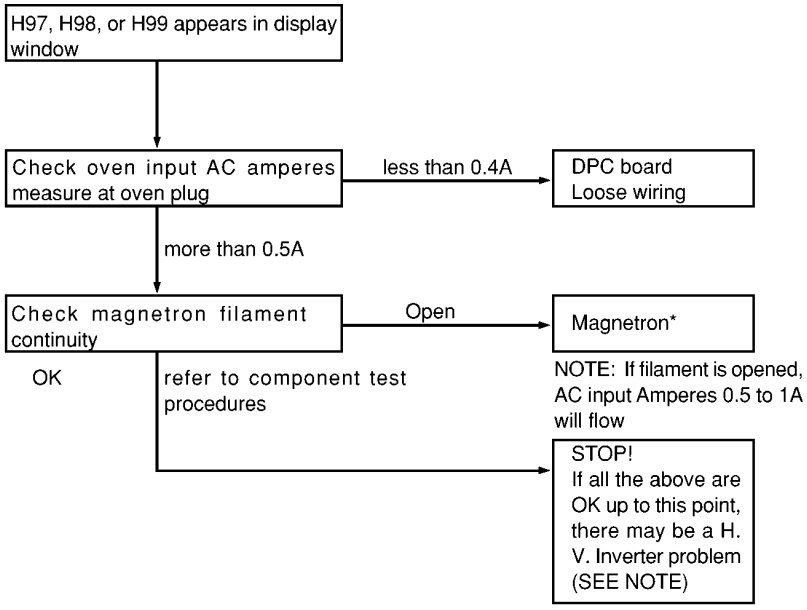
NOTE: DO NOT try to repair this Inverter Power Supply (U) and also DO NOT RE-ADJUST PRESET CONTROL on the board. It is very dangerous to repair or adjust without proper test equipment because this circuit handles very high voltage and very large current. Off alignment of inverter board operation is dangerous. Operating a misaligned Inverter circuit is dangerous due to the very high voltage and current that is produced by this board. Defective boards must be replaced with a new one.

* Check magnetron filament for open or short to case before proceeding to determine a good magnetron.

NOTE: After check, unplug unit to reset to normal operation mode.

Alternate way to troubleshoot oven with AC Ampere meter used

H97, H98, H99 appears in display window a short time after start key is pressed and no microwave oscillation with AC Ampere meter used for troubleshooting


H97, H98, or H99 appears in display window
Check oven input AC amperes measure at oven plug
less than 0.4A
DPC board
Loose wiring
more than 0.5A
Check magnetron filament continuity
Open
Magnetron*
OK
refer to component test procedures
NOTE: If filament is opened, AC input Amperes 0.5 to 1A will flow
STOP!
If all the above are OK up to this point, there may be a H. V. Inverter problem (SEE NOTE)

NOTE: DO NOT try to repair this Inverter Power Supply (U) and also DO NOT RE-ADJUST PRESET CONTROL on the board. It is very dangerous to repair or adjust without proper test equipment because this circuit handles very high voltage and very large current. Off alignment of inverter board operation is dangerous. Operating a misaligned Inverter circuit is dangerous due to the very high voltage and current that is produced by this board. Defective boards must be replaced with a new one.

* Check magnetron filament for open or short to case before proceeding to determine a good magnetron.

NOTE: After check, unplug unit to reset to normal operation mode.

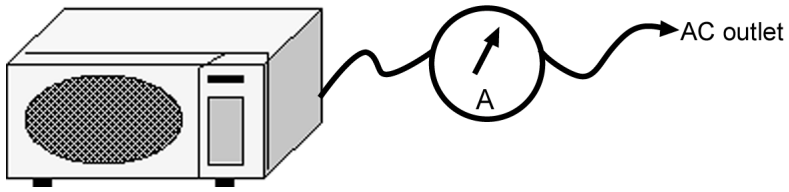
8.3. Simple way of H.V. Inverter/magnetron troubleshooting

Purpose:

Simple way **(3/23 seconds rule)** of identifying whether it's Magnetron, Inverter, or others.

Set-up:

The unit under question is connected through the Ammeter as shown below.



Procedure:

Follow the matrix table below to identify the problem source.

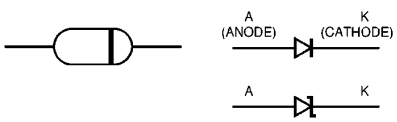
Note:

Do not replace both Inverter board and Magnetron simultaneously and automatically without going through this procedure.

Power will:	Ammeter reading is:	To do:	Remedy:
Shut off in 23 seconds after "Start".	1. Between 0.5A and 1.0A.	Check and repair open magnetron circuit	Open magnetron wiring between Inverter and magnetron terminal.
	2. Between 1.0A and 2.0A.	Check continuity of D702 in Inverter PCB.	
		⇩	
		1. D702 shorted	Replace **H.V.Inverter** (F606Y6G00AP/F606Y6G00CP)
		2. D702 is OK	Replace **magnetron**
Shut off in 3 seconds after "Start"	1. Less than 0.5A	Check open circuit: Latch Switch, DPC, Power Relay and CN701	Replace defective component(s), or correct switch, cables and connectors.

8.4. How to check the semiconductors using an OHM meter

Diode



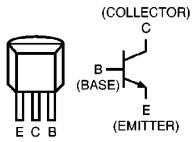
	FORWARD	REVERSE
A-K	SMALL	∞

Transistor

NPN Transistor

2SC·····

2SD·····

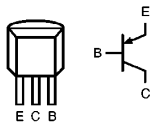


	FORWARD	REVERSE
B-E	SMALL	∞
B-C	SMALL	∞
C-E	∞	∞

PNP Transistor

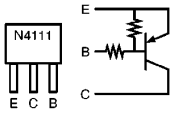
2SA·····

2SB·····



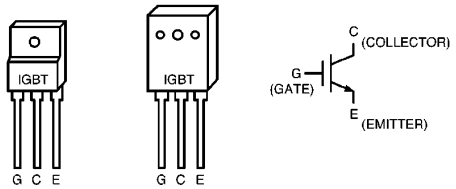
	FORWARD	REVERSE
B-E	SMALL	∞
C-B	SMALL	∞
C-E	∞	∞

Digital Transistor
PNP Transistor



	FORWARD	REVERSE
E-B	10kΩ ~ 30kΩ	10kΩ ~ 30kΩ
C-B	50kΩ ~ 90kΩ	∞
C-E	40kΩ ~ 80kΩ	∞

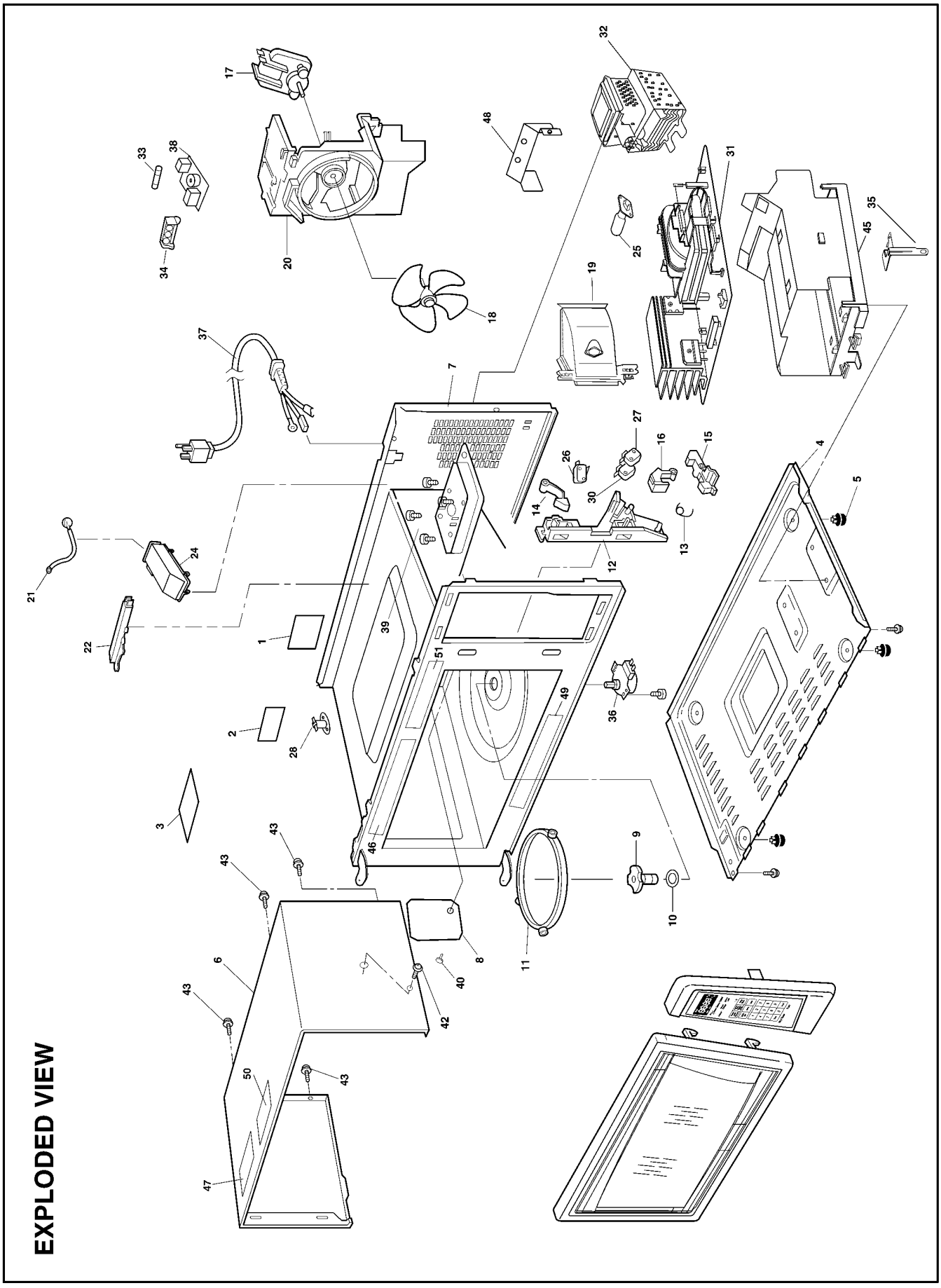
IGBT
(INSULATED GATE BIPOLAR TRANSISTOR)



	FORWARD	REVERSE
E-C	SMALL	∞
E-G	∞	∞
C-G	∞	∞

9 EXPLODED VIEW AND PARTS LIST

9.1. EXPLODED VIEW



9.2. PARTS LIST

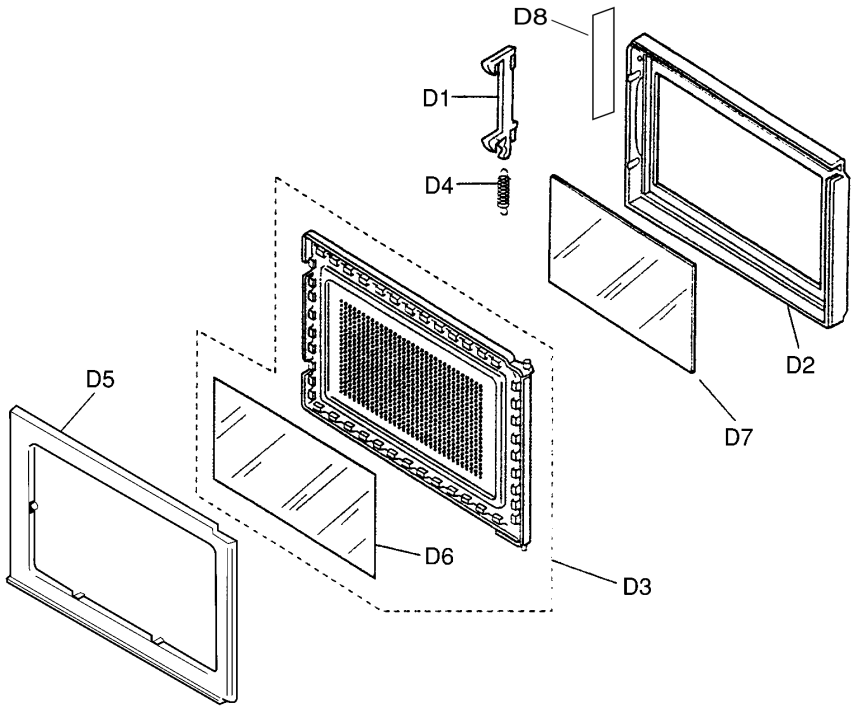
NOTE:

1. When ordering replacement part(s), please use part number(s) shown in this part list.
   Do not use description of the part.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacture's specified parts.

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
1		F00064W70AP	CAUTION LABEL	1	T6*5SF APH,T664SFR APH
1		F00069660AP	CAUTION LABEL	1	H6*5 APH,S6*5 APH,S505 APH,H624*FR APH, H504*FR APH,T695 RPH,S6*5 RPH
1		F00067600CP	CAUTION LABEL	1	CPH
2		F00077D60BAP	NAME PLATE	1	H665BF APH
2		F00077D60HAP	NAME PLATE	1	H665WF APH
2		F00077F50BAP	NAME PLATE	1	H635BF APH
2		F00077F50HAP	NAME PLATE	1	H635WF APH
2		F00077D80BAP	NAME PLATE	1	S655BF APH
2		F00077D80HAP	NAME PLATE	1	S655WF APH
2		F00077E20SAP	NAME PLATE	1	S645MF APH
2		F00077E20BAP	NAME PLATE	1	S645BF APH
2		F00077E20HAP	NAME PLATE	1	S645WF APH
2		F00077E00BAP	NAME PLATE	1	S635BF APH
2		F00077E00HAP	NAME PLATE	1	S635WF APH
2		F00077Z50BAP	NAME PLATE	1	H624BFR APH
2		F00077Z50HAP	NAME PLATE	1	H624WFR APH
2		F00077E10BAP	NAME PLATE	1	H645BF APH
2		F00077E10HAP	NAME PLATE	1	H645WF APH
2		F00077E50BAP	NAME PLATE	1	H625BF APH
2		F00077E50HAP	NAME PLATE	1	H625WF APH
2		F00077F00BAP	NAME PLATE	1	H504BFR APH
2		F00077F00HAP	NAME PLATE	1	H504WFR APH
2		F00077F10BAP	NAME PLATE	1	S505BF APH
2		F00077F10HAP	NAME PLATE	1	S505WF APH
2		F00077D90HRP	NAME PLATE	1	S655WF RPH
2		F00077G50HRP	NAME PLATE	1	S655WM RPH
2		F00077G60HRP	NAME PLATE	1	S645WM RPH
3		F00337D00AP	FUSE LABEL	1	APH,CPH
3		F00337D00RP	FUSE LABEL	1	RPH
4		F10016K10AP	BASE	1	
5		F10084T00AP	RUBBER FOOT	4	
6		F110D5Y00SAP	CABINET BODY (U)	1	T695SF/SM,T685SF
6		F110D5Y30SAP	CABINET BODY (U)	1	T664SFR
6		F110D5Y40SAP	CABINET BODY (U)	1	T675SF,T665SF,T655SF
6		F110D5L70SAP	CABINET BODY (U)	1	S645MF
6		F110D5Y30BAP	CABINET BODY (U)	1	H6*5BF,S6*5BF,S505BF,H624BFR,H504BFR
6		F110D5Y30HCP	CABINET BODY (U)	1	H6*5WF,S6*5WF/WM,S505WF,H624WFR,H504WFR
7	⚠	F200A5Y30AP	OVEN (U)	1	T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH, H6*5 APH/CPH,H624*FR APH,H504*FR APH
7	⚠	F200A5Y40AP	OVEN (U)	1	S6*5 APH/CPH/RPH,S505 APH/CPH
8		F20555L00AP	COVER	1	
9		F21315Y00AP	PULLY SHAFT	1	
10		F2177-F80	WASHER	1	
11		F290D9330AP	ROLLER RING (U)	1	
12	⚠	F30206G30AP	DOOR HOOK	1	T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH
12	⚠	F30206K50AP	DOOR HOOK	1	H6*5 APH/CPH,S**5 APH/CPH/RPH, H624*FR APH,H504*FR APH
13		F3097-5L00	LATCH SPRING	1	H6*5 APH/CPH,S**5 APH/CPH/RPH, H624*FR APH,H504*FR APH
14		F31366G30AP	HOOK LEVER A	1	T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH
14		F31366K50AP	HOOK LEVER A	1	H6*5 APH/CPH,S**5 APH/CPH/RPH, H624*FR APH,H504*FR APH
15		F31376G30AP	HOOK LEVER B	1	T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH
15		F31376K50AP	HOOK LEVER B	1	H6*5 APH/CPH,S**5 APH/CPH/RPH, H624*FR APH,H504*FR APH
16		F31386G30AP	HOOK LEVER C	1	T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH
16		F31386K50AP	HOOK LEVER C	1	H6*5 APH/CPH,S**5 APH/CPH/RPH, H624*FR APH,H504*FR APH
17		F400A4T00AP	FAN MOTOR	1	AC120V,SINGLE PHASE,60Hz

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
18		F40084T00AP	FAN BLADE	1	
19		F40257D00AP	AIR GUIDE A	1	
20		F41445Y00AP	ORIFICE	1	
21		A707S4T00AP	STEAM SENSOR	1	T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH, H6*5 APH/CPH,H624*FR APH,H504*FR APH
22		F64508660AP	SENSOR COVER B	1	T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH, H6*5 APH/CPH,H624*FR APH,H504*FR APH
24		F65434W00AP	SENSOR COVER C	1	T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH, H6*5 APH/CPH,H624*FR APH,H504*FR APH
25		F612E5U40AP	INCANDESCENT LAMP (U)	1	125V,60Hz,20W
26	⚠	J61424T00AP	MICRO SWITCH	1	(PRIMARY LATCH SWITCH)(V-15G-3C25)
27	⚠	J61414T00AP	MICRO SWITCH	1	(SECONDARY LATCH SWITCH)(D3V-16G-3C25)
28	⚠	F61456N60AP	THERMAL CUTOUT	1	
30	⚠	J61784T00AP	MICRO SWITCH	1	(SHORT SWITCH)(D3V-1G-2C25)
31	⚠	F606Y6G00AP	H.V.INVERTER (U)	1	APH,RPH
31	⚠	F606Y6G00CP	H.V.INVERTER (U)	1	CPH
32	⚠	2M261-M32F	MAGNETRON	1	APH,RPH
32	⚠	2M261-M32J	MAGNETRON	1	CPH
33	⚠	F62307A00AP	FUSE	1	20A/120V
34		F62315G10XN	FUSE HOLDER	1	RPH
35		F66626K50AP	GROUNDING PLATE	1	
36		F63265G60AP	TURNTABLE MOTOR	1	
37	⚠	F900C4T60CP	AC CORD W/PLUG	1	T6*5SF APH,T664SFR APH
37	⚠	F900C4T00AP	AC CORD W/PLUG	1	H6*5 APH,S**5 APH/RPH,H624*FR APH, H504*FR APH,T695 RPH
37	⚠	F900C5Y30CP	AC CORD W/PLUG	1	CPH
38		J692Y7D00AP	NOISE FILTER (U)	1	APH
38		J692Y4T00CPR	NOISE FILTER (U)	1	CPH
39		XTWFA4+12T	SCREW	4	FOR MAGNETRON
40		XTTFA4+6BN	SCREW	1	FOR COVER
42		XTCAFA4+12AFM	SCREW	1	FOR CABINET BODY SIDE (T695SF/SM,T685SF)
42		XTCAFA4+12AFS	SCREW	1	FOR CABINET BODY SIDE (T675SF,T665SF,T655SF,T664SFR,H6*5MF)
42		XTCAFA4+12AFK	SCREW	1	FOR CABINET BODY SIDE (H6*5BF,S**5BF,H624BFR,,H504BFR)
42		XTCAFA4+12AFW	SCREW	1	FOR CABINET BODY SIDE (H6*5WF,S**5WF/WM,H624WFR,H504WFR)
43		XTTANE4T12A0	SCREW	4	FOR CABINET BODY
45		F65856K50AP	INVERTER BRACKET	1	
46		F03346K10AP	MENU LABEL	1	T695SF APH,T685SF APH,T675SF APH
46		F03346K10CP	MENU LABEL	1	T695SF CPH,T685SF CPH
46		F03347D00RP	MENU LABEL	1	T695SF/SM RPH
46		F03345Y30AP	MENU LABEL	1	T665SF APH,T655SF APH,T664SFR APH
46		F03347D60AP	MENU LABEL	1	H665BF/WF APH,H635BF/WF APH
46		F03347D60CP	MENU LABEL	1	H665BF/WF CPH
46		F03347D80AP	MENU LABEL	1	S655BF/WF APH
46		F03346L20AP	MENU LABEL	1	S645MF/BF/WF APH
46		F03347E60CP	MENU LABEL	1	S615BF/WF CPH
46		F03345Y40AP	MENU LABEL	1	S635BF/WF APH
46		F03347G50RP	MENU LABEL	1	S655WF/WM RPH,S645WM RPH
47		F02445Y00AP	CAUTION LABEL	1	T695SF APH/CPH,T695SF/SM RPH,T685SF APH/CPH
48		F40264T60AP	AIR GUIDE B	1	
49		F04467D00AP	FUNCTION LABEL	1	T695SF APH
49		F04467D00CP	FUNCTION LABEL	1	T695SF CPH
49		F04467D00RP	FUNCTION LABEL	1	T695SF/SM RPH
50		F00066G00RP	CAUTION LABEL	1	T695SF/SM RPH
51		F00167D00AP	CAUTION LABEL	1	T695SF APH

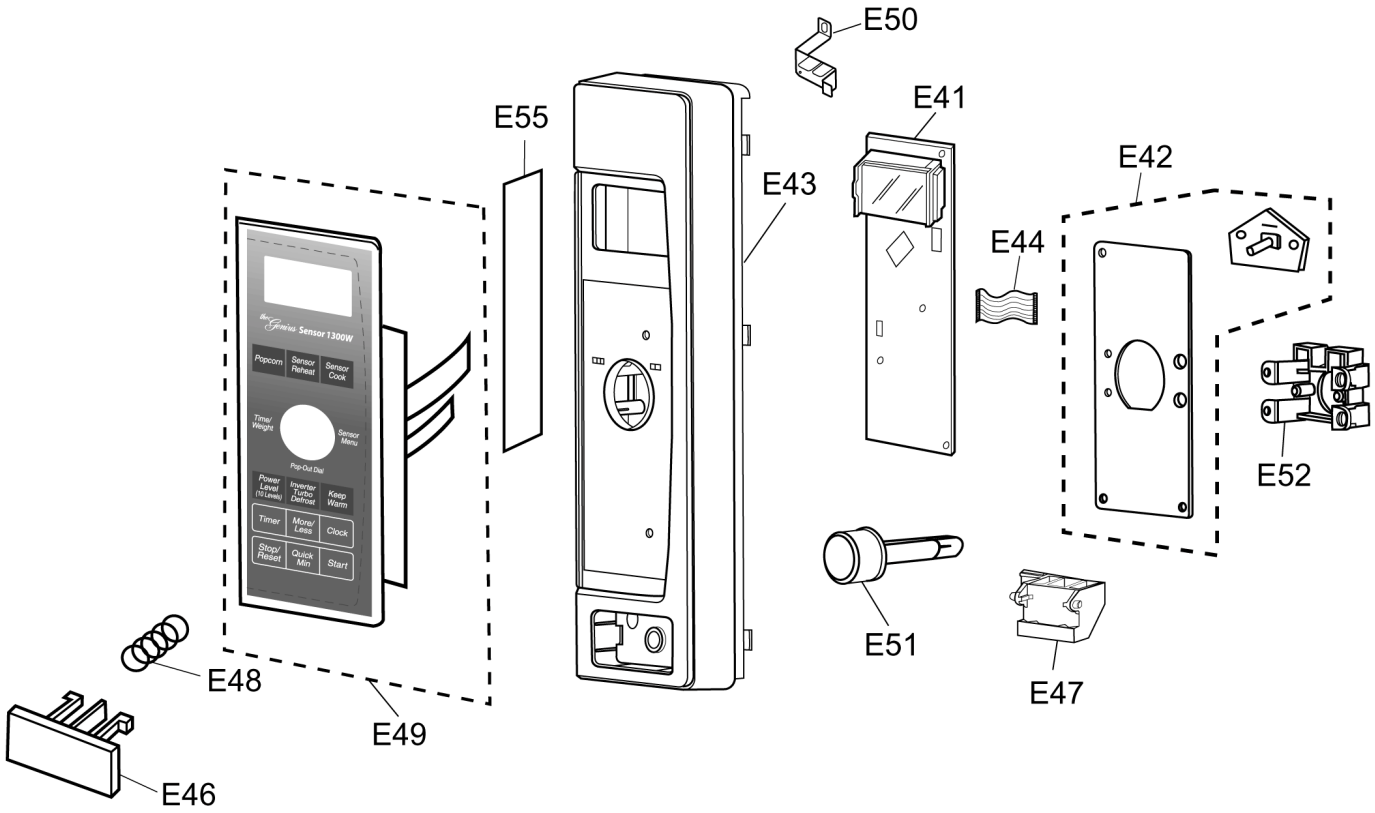
9.3. DOOR ASSEMBLY



Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
D1		F3018-1200	DOOR KEY A	1	T6*5 APH/CPH/RPH,T664SFR APH
D1		F30184Y30XN	DOOR KEY A	1	H6*5 APH/CPH,S**5 APH/CPH/RPH
D2	⚠	F301A7D00SAP	DOOR A (U)	1	T695SF APH/CPH/RPH,T685SF APH/CPH,T675SF APH,T665SF APH
D2	⚠	F301A7D40SAP	DOOR A (U)	1	T655SF APH
D2	⚠	F301A5Y20SAP	DOOR A (U)	1	T664SFR APH
D2	⚠	F30016K50SAP	DOOR A	1	S645MF APH
D2	⚠	F30016K50BAP	DOOR A	1	H665BF APH/CPH,H635BF APH,S655BF APH, S645BF APH,S615BF CPH,S635BF APH/CPH,S605BF CPH
D2	⚠	F30016K50HAP	DOOR A	1	H665WF APH/CPH,H635WF APH,S655WF APH,S645WF APH, S615WF CPH,S635WF APH/CPH,S605WF CPH,S6*5WF/WM RPH
D2	⚠	F30015Y30BAP	DOOR A	1	H645BF APH,H625BF APH,S625BF CPH,H624BFR APH
D2	⚠	F30015Y30HAP	DOOR A	1	H645WF APH,H625WF APH,S625WF CPH,H624WFR APH
D2	⚠	F30015A00BAP	DOOR A	1	S505BF APH/CPH,H504BFR APH
D2	⚠	F30014T00HAP	DOOR A	1	S505WF APH/CPH,H504WFR APH
D3	⚠	F302K5L00AP	DOOR E (U)	1	EXCEPT S505 APH/CPH,H504*FR APH
D3	⚠	F302K4T00AP	DOOR E (U)	1	S505 APH/CPH,H504*FR APH
D4		F30215G10XN	DOOR KEY SPRING	1	
D5	⚠	F30854T00AP	DOOR C	1	
D6	⚠	F31454T00AP	DOOR SCREEN A	1	
D7		F31467D60BAP	DOOR SCREEN B	1	H665BF APH/CPH,H635BF APH,S655BF APH, S645BF/MF APH,S635BF CPH,S615BF CPH,S605BF CPH
D7		F31467D60HAP	DOOR SCREEN B	1	H665WF APH/CPH,H635WF APH,S655WF APH,S645WF APH, S635WF CPH,S615WF CPH,S605WF CPH
D7		F31466K50BAP	DOOR SCREEN B	1	S635BF APH,S645WM RPH
D7		F31466K50HAP	DOOR SCREEN B	1	S635WF APH,S655WF/WM RPH
D7		F31465Y30BAP	DOOR SCREEN B	1	H645BF APH,H625BF APH,S625BF CPH,H624BFR APH
D7		F31465Y30HAP	DOOR SCREEN B	1	H645WF APH,H625WF APH,S625WF CPH,H624WFR APH
D7		F31464T00BAP	DOOR SCREEN B	1	S505BF APH/CPH,H504BFR APH
D7		F31464T00HAP	DOOR SCREEN B	1	S505WF APH/CPH,H504WFR APH
D8		F02459660AP	DHHS LABEL	1	T6*5 APH/RPH,S505BF/WF APH,H504BFR/WFR APH
D8		F04114180CP	HC LABEL	1	T6*5SF CPH,S505BF/WF CPH

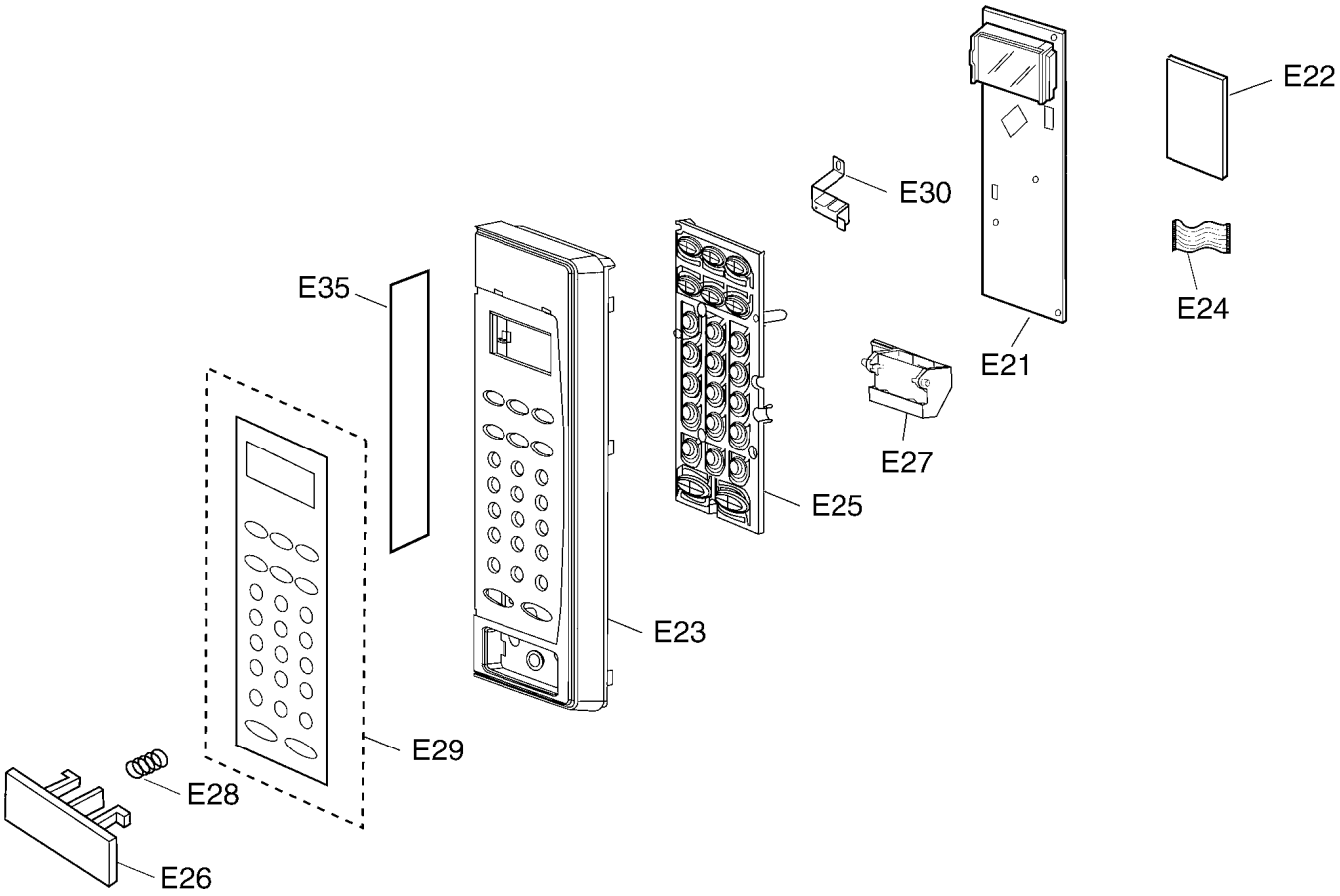
9.4. ESCUTCHEON BASE ASSEMBLY

9.4.1. NN-T695SF APH/CPH, T695SF/SM RPH



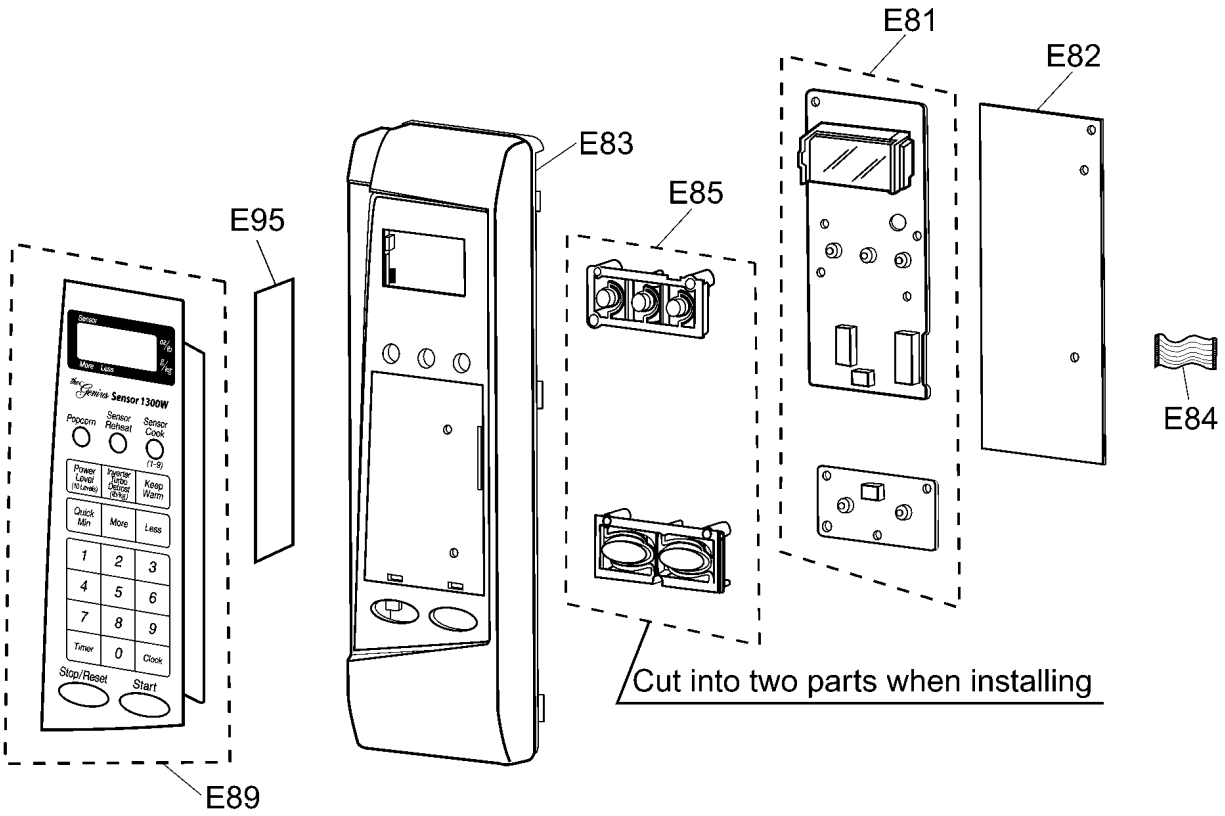
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E41		F603L7D00AP	D.P.CIRCUIT (AU)	1	T695SF APH
E41		F603L7D00CP	D.P.CIRCUIT (AU)	1	T695SF CPH
E41		F603L7D00RP	D.P.CIRCUIT (AU)	1	T695SF/SM RPH
E42		F603Y7D00AP	D.P.CIRCUIT (DU)	1	T695SF APH
E42		F603Y7D00CP	D.P.CIRCUIT (DU)	1	T695SF CPH
E42		F603Y7D00RP	D.P.CIRCUIT (DU)	1	T695SF/SM RPH
E43		F800L7D00SAP	ESCUTCHEON BASE (U)	1	T695SF APH/CPH,T695SF/SM RPH
E44		F66167D00AP	FLAT CABLE	1	T695SF APH/CPH,T695SF/SM RPH
E46		F80725Y00SAP	DOOR OPENING BUTTON	1	T6*5 APH/CPH/RPH,T664SFR APH
E47		F82565Y00AP	DOOR OPENING LEVER	1	T695SF APH/CPH,T695SF/SM RPH
E48		F80375K00AP	COOK BUTTON SPRING	1	
E49		F630Y7D00SAP	MEMBRANE SWITCH (U)	1	T695SF APH
E49		F630Y7D00SCP	MEMBRANE SWITCH (U)	1	T695SF CPH
E49		F630Y7D00SRP	MEMBRANE SWITCH (U)	1	T695SF/SM RPH
E50		F90095X00AP	GROUNDING PANEL	1	T6*5 APH/CPH/RPH,T664SFR APH
E51		F803G7D00BAP	POP-UP DIAL (U)	1	T695SF APH/CPH,T695SF/SM RPH
E52		F80187D00BAP	BACKSTOP	1	T695SF APH/CPH,T695SF/SM RPH
E55		F00077D00AP	NAME PLATE	1	T695SF APH
E55		F00077D00CP	NAME PLATE	1	T695SF CPH
E55		F00077D00RP	NAME PLATE	1	T695SF RPH
E55		F00077G40RP	NAME PLATE	1	T695SM RPH

9.4.2. NN-T685SF APH/CPH, T675SF APH



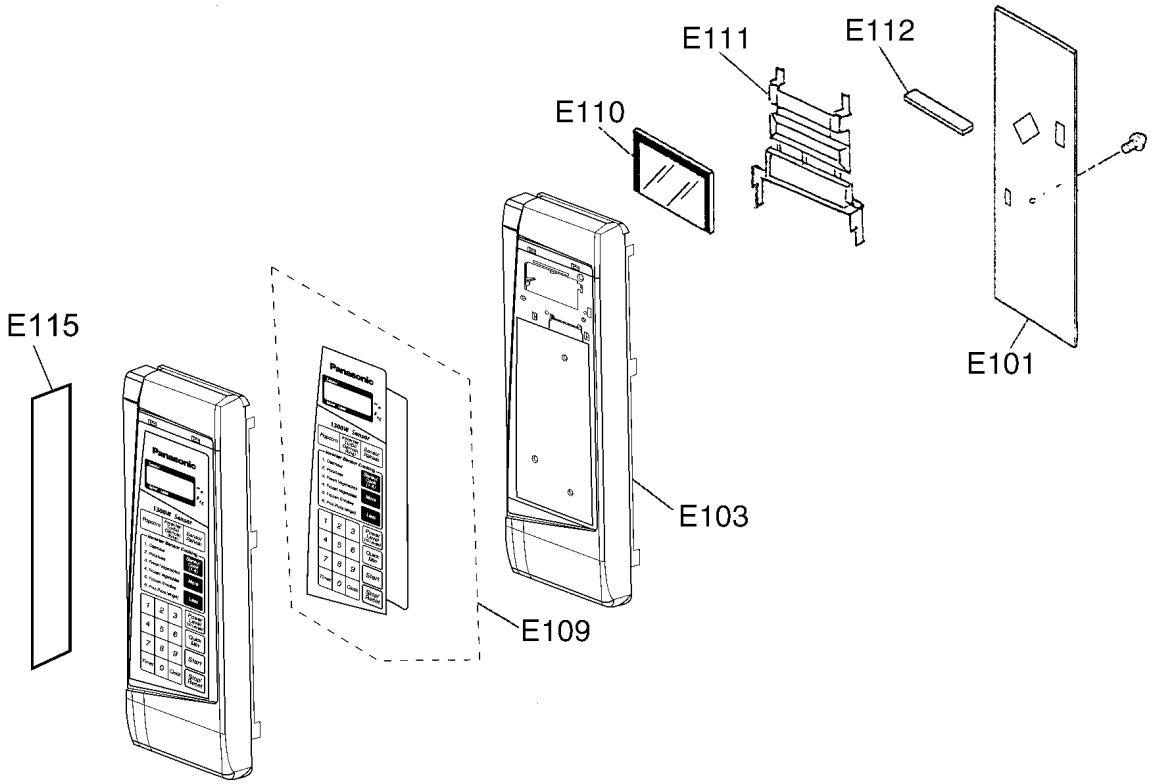
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E21		F603L7D10AP	D.P.CIRCUIT (AU)	1	T685SF APH,T675SF APH
E21		F603L7D10CP	D.P.CIRCUIT (AU)	1	T685SF CPH
E22		F603Y6K10AP	D.P.CIRCUIT (DU)	1	T685SF APH,T675SF APH
E22		F603Y5W00CP	D.P.CIRCUIT (DU)	1	T685SF CPH
E23		F800L6K70AP	ESCUTCHEON BASE (U)	1	T685SF APH/CPH,T675SF APH
E24		F66164W20AP	FLAT CABLE	1	T685SF APH/CPH,T675SF APH
E25		F82986K10AP	BUTTON	1	T685SF APH/CPH,T675SF APH
E26		F80725Y00SAP	DOOR OPENING BUTTON	1	T6*5 APH/CPH/RPH,T664SFR APH
E27		F82566K10AP	DOOR OPENING LEVER	1	T685SF APH/CPH,T675SF APH
E28		F80375K00AP	COOK BUTTON SPRING	1	
E29		F83377D10SAP	MEMBRANE SHEET	1	T685SF APH,T675SF APH
E29		F83377D10SCP	MEMBRANE SHEET	1	T685SF CPH
E30		F90095X00AP	GROUNDING PANEL	1	T6*5 APH/CPH/RPH,T664SFR APH
E35		F00077D10AP	NAME PLATE	1	T685SF APH
E35		F00077D10CP	NAME PLATE	1	T685SF CPH
E35		F00077D30AP	NAME PLATE	1	T675SF APH

9.4.3. NN-H665 APH/CPH, H635 APH, S655 APH, S645 APH, S615 CPH



Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E81		F603L7D60AP	D.P.CIRCUIT (AU)	1	H665BF/WF APH,H635BF/WF APH
E81		F603L7D60CP	D.P.CIRCUIT (AU)	1	H665BF/WF CPH
E81		F603L7D80AP	D.P.CIRCUIT (AU)	1	S655BF/WF APH
E81		F603L7E20AP	D.P.CIRCUIT (AU)	1	S645MF/BF/WF APH
E81		F603L7E60CP	D.P.CIRCUIT (AU)	1	S615BF/WF CPH
E82		F603Y7D60AP	D.P.CIRCUIT (DU)	1	H665BF/WF APH,H635BF/WF APH
E82		F603Y7D60CP	D.P.CIRCUIT (DU)	1	H665BF/WF CPH
E82		F603Y7D80AP	D.P.CIRCUIT (DU)	1	S655BF/WF APH,S645MF/BF/WF APH
E82		F603Y7E60CP	D.P.CIRCUIT (DU)	1	S615BF/WF CPH
E83		F80347D60BAP	ESCUTCHEON BASE	1	H665BF APH/CPH,H635BF APH, S655BF APH,S645BF APH,S615BF CPH
E83		F80347D60HAP	ESCUTCHEON BASE	1	H665WF APH/CPH,H635WF APH,S655WF APH, S645WF APH,S615WF CPH
E83		F80347D60SAP	ESCUTCHEON BASE	1	S645MF APH
E84		F66164W20AP	FLAT CABLE	1	H665 APH/CPH,H635 APH,S655 APH, S645 APH,S615 CPH
E85		F82987D60KAP	BUTTON	1	H665 APH/CPH,H635 APH,S655 APH, S645 APH,S615 CPH
E89		F630Y7D60BAP	MEMBRANE SWITCH (U)	1	H665BF APH,H635BF APH
E89		F630Y7D60HAP	MEMBRANE SWITCH (U)	1	H665WF APH,H635WF APH
E89		F630Y7D60BCP	MEMBRANE SWITCH (U)	1	H665BF CPH
E89		F630Y7D60HCP	MEMBRANE SWITCH (U)	1	H665WF CPH
E89		F630Y7D80BAP	MEMBRANE SWITCH (U)	1	S655BF APH
E89		F630Y7D80HAP	MEMBRANE SWITCH (U)	1	S655WF APH
E89		F630Y7E20SAP	MEMBRANE SWITCH (U)	1	S645MF APH
E89		F630Y7E20BAP	MEMBRANE SWITCH (U)	1	S645BF APH
E89		F630Y7E20HAP	MEMBRANE SWITCH (U)	1	S645WF APH
E89		F630Y7E60BCP	MEMBRANE SWITCH (U)	1	S615BF CPH
E89		F630Y7E60HCP	MEMBRANE SWITCH (U)	1	S615WF CPH
E95		F00077D60BCP	NAME PLATE	1	H665BF CPH
E95		F00077D60HCP	NAME PLATE	1	H665WF CPH
E95		F00077E60BCP	NAME PLATE	1	S615BF CPH
E95		F00077E60HCP	NAME PLATE	1	S615WF CPH

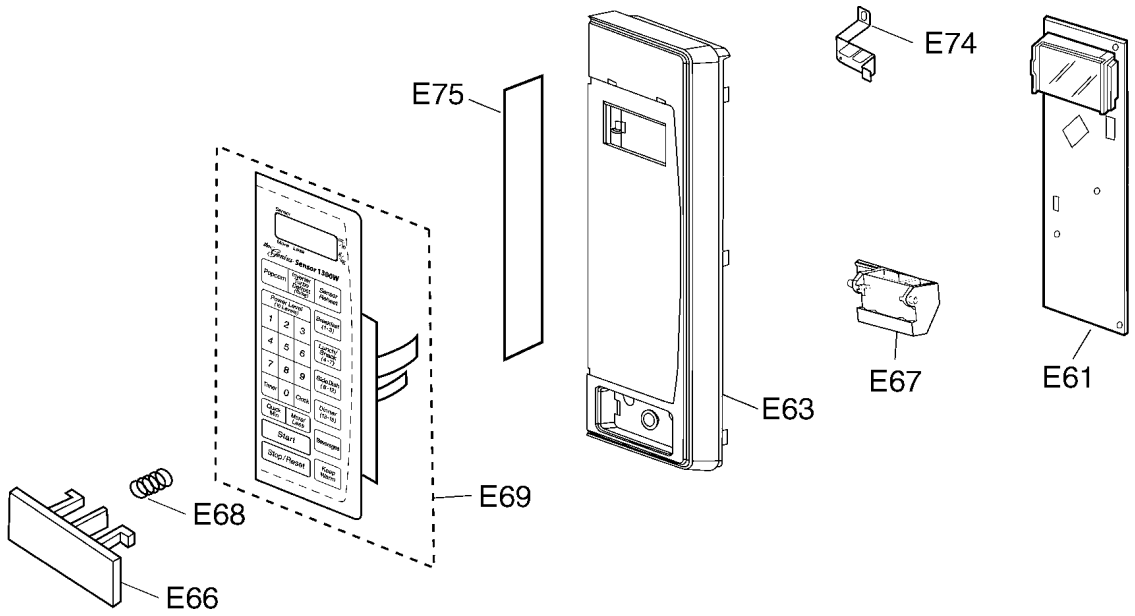
9.4.4. NN-H645 APH, S635 APH/CPH, H625 APH, S625 CPH, S605 CPH, S505 APH/CPH, S655 RPH, S645 RPH, H624*FR APH, H504*FR APH



Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E101		F603L7E00AP	D.P.CIRCUIT (AU)	1	S635BF/WF APH
E101		F603L7E80CP	D.P.CIRCUIT (AU)	1	S635BF/WF CPH
E101		F603L7E70CP	D.P.CIRCUIT (AU)	1	S605BF/WF CPH
E101		F603L7E50AP	D.P.CIRCUIT (AU)	1	H625BF/WF APH,H624BFR/WFR APH
E101		F603L7E10AP	D.P.CIRCUIT (AU)	1	H645BF/WF APH
E101		F603L7E90CP	D.P.CIRCUIT (AU)	1	S625BF/WF CPH
E101		F603L7F00AP	D.P.CIRCUIT (AU)	1	H504BFR/WFR APH
E101		F603L7F10AP	D.P.CIRCUIT (AU)	1	S505BF/WF APH
E101		F603L7F10CP	D.P.CIRCUIT (AU)	1	S505BF/WF CPH
E101		F603L7G50RP	D.P.CIRCUIT (AU)	1	S655WF/WM RPH,S645WM RPH
E103		F80346K50BAP	ESCUTCHEON BASE	1	S635BF APH/CPH,S605BF CPH
E103		F80346K50HAP	ESCUTCHEON BASE	1	S635WF APH/CPH,S605WF CPH,S6*5WF/WM RPH
E103		F80345L00BAP	ESCUTCHEON BASE	1	H645BF APH,H625BF APH,S625BF CPH,H624BFR APH
E103		F80345L00HAP	ESCUTCHEON BASE	1	H645WF APH,H625WF APH,S625WF CPH,H624WFR APH
E103		F80344T00BAP	ESCUTCHEON BASE	1	S505BF APH/CPH,H504BFR APH
E103		F80344T00HAP	ESCUTCHEON BASE	1	S505WF APH/CPH,H504WFR APH
E109		F630Y6K80BAP	MEMBRANE SWITCH (U)	1	S635BF APH
E109		F630Y6K80HAP	MEMBRANE SWITCH (U)	1	S635WF APH
E109		F630Y7E80BCP	MEMBRANE SWITCH (U)	1	S635BF CPH
E109		F630Y7E80HCP	MEMBRANE SWITCH (U)	1	S635WF CPH
E109		F630Y7E70BCP	MEMBRANE SWITCH (U)	1	S605BF CPH
E109		F630Y7E70HCP	MEMBRANE SWITCH (U)	1	S605WF CPH
E109		F630Y6L30BAP	MEMBRANE SWITCH (U)	1	H625BF APH,H624BFR APH
E109		F630Y6L30HAP	MEMBRANE SWITCH (U)	1	H625WF APH,H624WFR APH
E109		F630Y7E10BAP	MEMBRANE SWITCH (U)	1	H645BF APH
E109		F630Y7E10HAP	MEMBRANE SWITCH (U)	1	H645WF APH
E109		F630Y7E90BCP	MEMBRANE SWITCH (U)	1	S625BF CPH
E109		F630Y7E90HCP	MEMBRANE SWITCH (U)	1	S625WF CPH
E109		F630Y6M00BAP	MEMBRANE SWITCH (U)	1	H504BFR APH
E109		F630Y6M00HAP	MEMBRANE SWITCH (U)	1	H504WFR APH
E109		F630Y6M10BAP	MEMBRANE SWITCH (U)	1	S505BF APH
E109		F630Y6M10HAP	MEMBRANE SWITCH (U)	1	S505WF APH
E109		F630Y7F10BCP	MEMBRANE SWITCH (U)	1	S505BF CPH
E109		F630Y7F10HCP	MEMBRANE SWITCH (U)	1	S505WF CPH
E109		F630Y7D90HRP	MEMBRANE SWITCH (U)	1	S655WF/WM RPH,S645WM RPH
E110		AEDDHJ7E00AP	DISPLAY	1	H645 APH,S635 APH/CPH,H625 APH,S625 CPH,S605 CPH, S505 APH/CPH,S6*5 RPH,H624*FR APH,H504*FR APH

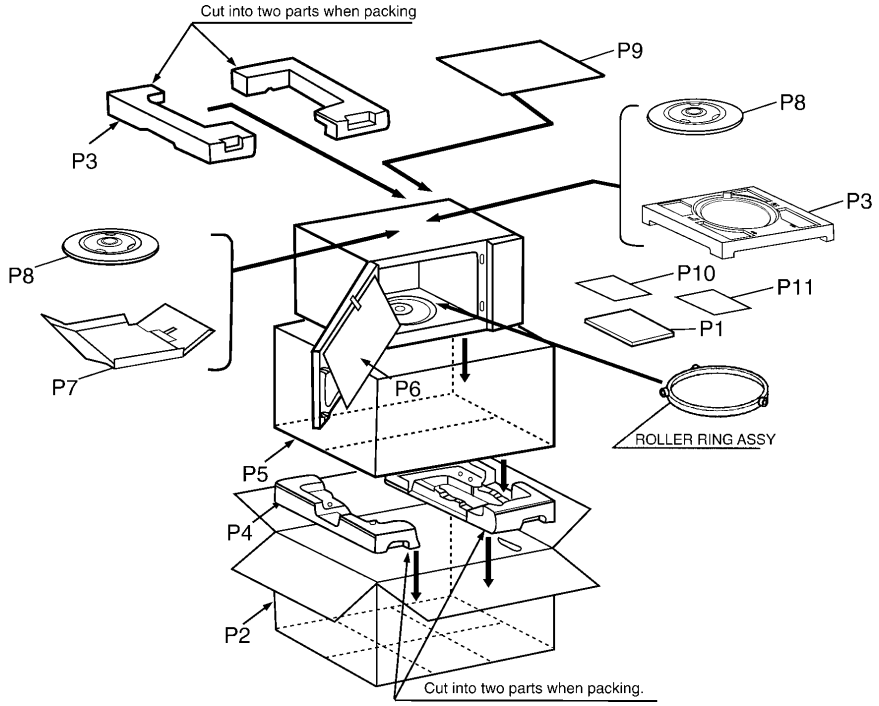
Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E111		F66175L00AP	DISPLAY TUBE COVER	1	H645 APH,S635 APH/CPH,H625 APH,S625 CPH,S605 CPH, S6*5 RPH,H624*FR APH
E111		F66174T00AP	DISPLAY TUBE COVER	1	S505 APH/CPH,H504*FR APH
E112		F67005U40XN	RUBBER CONNECTOR	1	H645 APH,S635 APH/CPH,H625 APH,S625 CPH,S605 CPH, S505 APH/CPH,S6*5 RPH,H624*FR APH,H504*FR APH
E115		F00077E80BCP	NAME PLATE	1	S635BF CPH
E115		F00077E80HCP	NAME PLATE	1	S635WF CPH
E115		F00077E70BCP	NAME PLATE	1	S605BF CPH
E115		F00077E70HCP	NAME PLATE	1	S605WF CPH
E115		F00077E90BCP	NAME PLATE	1	S625BF CPH
E115		F00077E90HCP	NAME PLATE	1	S625WF CPH
E115		F00077F10BCP	NAME PLATE	1	S505BF CPH
E115		F00077F10HCP	NAME PLATE	1	S505WF CPH

9.4.5. NN-T665SF APH, T655SF APH, T664SFR APH



Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
E61		F603L7D40AP	D.P.CIRCUIT (AU)	1	T665SF APH,T655SF APH,T664SFR APH
E63		F800L5Y70SAP	ESCUTCHEON BASE (U)		T665SF APH
E63		F800L5Y00BAP	ESCUTCHEON BASE (U)		T655SF APH,T664SFR APH
E66		F80725Y00SAP	DOOR OPENING BUTTON	1	T6*5 APH/CPH/RPH,T664SFR APH
E67		F82565Y00AP	DOOR OPENING LEVER	1	T665SF APH,T655SF APH,T664SFR APH
E68		F80375K00AP	COOK BUTTON SPRING	1	
E69		F630Y7D50SAP	MEMBRANE SWITCH (U)	1	T665SF APH
E69		F630Y7D40BAP	MEMBRANE SWITCH (U)	1	T655SF APH
E69		F630Y6K30BAP	MEMBRANE SWITCH (U)	1	T664SFR APH
E74		F90095X00AP	GROUNDING PANEL	1	T6*5 APH/CPH/RPH,T664SFR APH
E75		F00077D50SAP	NAME PLATE	1	T665SF APH
E75		F00077D40SAP	NAME PLATE	1	T655SF APH
E75		F00076Z40SAP	NAME PLATE	1	T664SFR APH

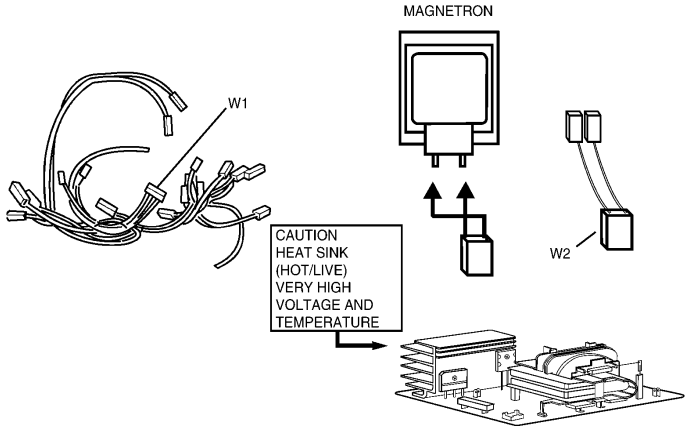
9.5. PACKING AND ACCESSORIES



Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
P1		F00037D00AP	INSTRUCTION MANUAL	1	T695SF APH
P1		F00037D00CP	INSTRUCTION MANUAL	1	T695SF CPH
P1		F00037D00RP	INSTRUCTION MANUAL	1	T695SF/SM RPH
P1		F00037D10AP	INSTRUCTION MANUAL	1	T685SF APH,T675SF APH
P1		F00037D10CP	INSTRUCTION MANUAL	1	T685SF CPH
P1		F00037D40AP	INSTRUCTION MANUAL	1	T665SF APH,T655SF APH
P1		F00036K50AP	INSTRUCTION MANUAL	1	T664SFR APH
P1		F00037E50AP	INSTRUCTION MANUAL	1	H665BF/WF APH,H635BF/WF APH, H645BF/WF APH,H625BF/WF APH
P1		F00037D60CP	INSTRUCTION MANUAL	1	H665BF/WF CPH
P1		F00037E20AP	INSTRUCTION MANUAL	1	S655BF/WF APH,S645MF/BF/WF APH
P1		F00037E60CP	INSTRUCTION MANUAL	1	S635BF/WF CPH,S625BF/WF CPH,S615BF/WF CPH
P1		F00036K80AP	INSTRUCTION MANUAL	1	S635BF/WF APH
P1		F00037E70CP	INSTRUCTION MANUAL	1	S605BF/WF CPH,S505BF/WF CPH
P1		F00036L30AP	INSTRUCTION MANUAL	1	H624BFR/WFR APH
P1		F00036L50AP	INSTRUCTION MANUAL	1	H504BFR/WFR APH
P1		F00036L60AP	INSTRUCTION MANUAL	1	S505BF/WF APH
P1		F00037G50RP	INSTRUCTION MANUAL	1	S655WF/WM RPH,S645WM RPH
P2		F01027D00SAP	PACKING CASE ,PAPER	1	T695SF APH
P2		F01027D00SCP	PACKING CASE ,PAPER	1	T695SF CPH
P2		F01027D00SRP	PACKING CASE ,PAPER	1	T695SF RPH
P2		F01027G40SRP	PACKING CASE ,PAPER	1	T695SM RPH
P2		F01027D10SAP	PACKING CASE ,PAPER	1	T685SF APH
P2		F01027D10SCP	PACKING CASE ,PAPER	1	T685SF CPH
P2		F01027D30SAP	PACKING CASE ,PAPER	1	T675SF APH
P2		F01027D50SAP	PACKING CASE ,PAPER	1	T665SF APH
P2		F01027D40SAP	PACKING CASE ,PAPER	1	T655SF APH
P2		F01026Z40SAP	PACKING CASE ,PAPER	1	T664SFR APH
P2		F01027D60BAP	PACKING CASE ,PAPER	1	H665BF APH
P2		F01027D60HAP	PACKING CASE ,PAPER	1	H665WF APH
P2		F01027D60BCP	PACKING CASE ,PAPER	1	H665BF CPH
P2		F01027D60HCP	PACKING CASE ,PAPER	1	H665WF CPH
P2		F01027F50BAP	PACKING CASE ,PAPER	1	H635BF APH
P2		F01027F50HAP	PACKING CASE ,PAPER	1	H635WF APH
P2		F01027D80BAP	PACKING CASE ,PAPER	1	S655BF APH
P2		F01027D80HAP	PACKING CASE ,PAPER	1	S655WF APH
P2		F01027E20SAP	PACKING CASE ,PAPER	1	S645MF APH
P2		F01027E20BAP	PACKING CASE ,PAPER	1	S645BF APH
P2		F01027E20HAP	PACKING CASE ,PAPER	1	S645WF APH
P2		F01027E60BCP	PACKING CASE ,PAPER	1	S615BF CPH
P2		F01027E60HCP	PACKING CASE ,PAPER	1	S615WF CPH
P2		F01027E00BAP	PACKING CASE ,PAPER	1	S635BF APH
P2		F01027E00HAP	PACKING CASE ,PAPER	1	S635WF APH
P2		F01027E80BCP	PACKING CASE ,PAPER	1	S635BF CPH

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
P2		F01027E80HCP	PACKING CASE ,PAPER	1	S635WF CPH
P2		F01027E70BCP	PACKING CASE ,PAPER	1	S605BF CPH
P2		F01027E70HCP	PACKING CASE ,PAPER	1	S605WF CPH
P2		F01026Z50BAP	PACKING CASE ,PAPER	1	H624BFR APH
P2		F01026Z50HAP	PACKING CASE ,PAPER	1	H624WFR APH
P2		F01027E10BAP	PACKING CASE ,PAPER	1	H645BF APH
P2		F01027E10HAP	PACKING CASE ,PAPER	1	H645WF APH
P2		F01027E50BAP	PACKING CASE ,PAPER	1	H625BF APH
P2		F01027E50HAP	PACKING CASE ,PAPER	1	H625WF APH
P2		F01027E90BCP	PACKING CASE ,PAPER	1	S625BF CPH
P2		F01027E90HCP	PACKING CASE ,PAPER	1	S625WF CPH
P2		F01027F10BAP	PACKING CASE ,PAPER	1	S505BF APH
P2		F01027F10HAP	PACKING CASE ,PAPER	1	S505WF APH
P2		F01027F10BCP	PACKING CASE ,PAPER	1	S505BF CPH
P2		F01027F10HCP	PACKING CASE ,PAPER	1	S505WF CPH
P2		F01027F00BAP	PACKING CASE ,PAPER	1	H504BFR APH
P2		F01027F00HAP	PACKING CASE ,PAPER	1	H504WFR APH
P2		F01027D90HRP	PACKING CASE ,PAPER	1	S655WF RPH
P2		F01027G50HRP	PACKING CASE ,PAPER	1	S655WM RPH
P2		F01027G60HRP	PACKING CASE ,PAPER	1	S645WM RPH
P3		F01046K50AP	UPPER FILLER	1	EXCEPT S505 APH/CPH,H504*FR APH
P3		F01045L30AP	UPPER FILLER		S505 APH/CPH,H504*FR APH
P4		F01055L00AP	LOWER FILLER	1	EXCEPT S505 APH/CPH,H504*FR APH
P4		F01054T00AP	LOWER FILLER		S505 APH/CPH,H504*FR APH
P5		F01068100XN	P.E.BAG	1	
P6		F01078100XN	DOOR SHEET	1	
P7		F01085T20RP	TRAY PACKING	1	S505 APH/CPH,H504*FR APH
P8		F06014T00AP	COOKING TRAY	1	
P9		F01924T00AP	SHEET	1	H**5BF,S**5MF/BF,H624BFR,H504BFR
P10		F00065G40AP	CAUTION LABEL	1	APH,RPH
P11		F04457D00SCP	OVERLAY	1	T695SF CPH
P11		F04457D10SCP	OVERLAY	1	T685SF CPH
P11		F04457D60BCP	OVERLAY	1	H665BF CPH
P11		F04457D60HCP	OVERLAY	1	H665WF CPH
P11		F04457E60BCP	OVERLAY	1	S615BF CPH
P11		F04457E60HCP	OVERLAY	1	S615WF CPH
P11		F04457E80BCP	OVERLAY	1	S635BF CPH
P11		F04457E80HCP	OVERLAY	1	S635WF CPH
P11		F04457E70BCP	OVERLAY	1	S605BF CPH
P11		F04457E70HCP	OVERLAY	1	S605WF CPH
P11		F04457E90BCP	OVERLAY	1	S625BF CPH
P11		F04457E90HCP	OVERLAY	1	S625WF CPH
P11		F04457F10BCP	OVERLAY	1	S505BF CPH
P11		F04457F10HCP	OVERLAY	1	S505WF CPH

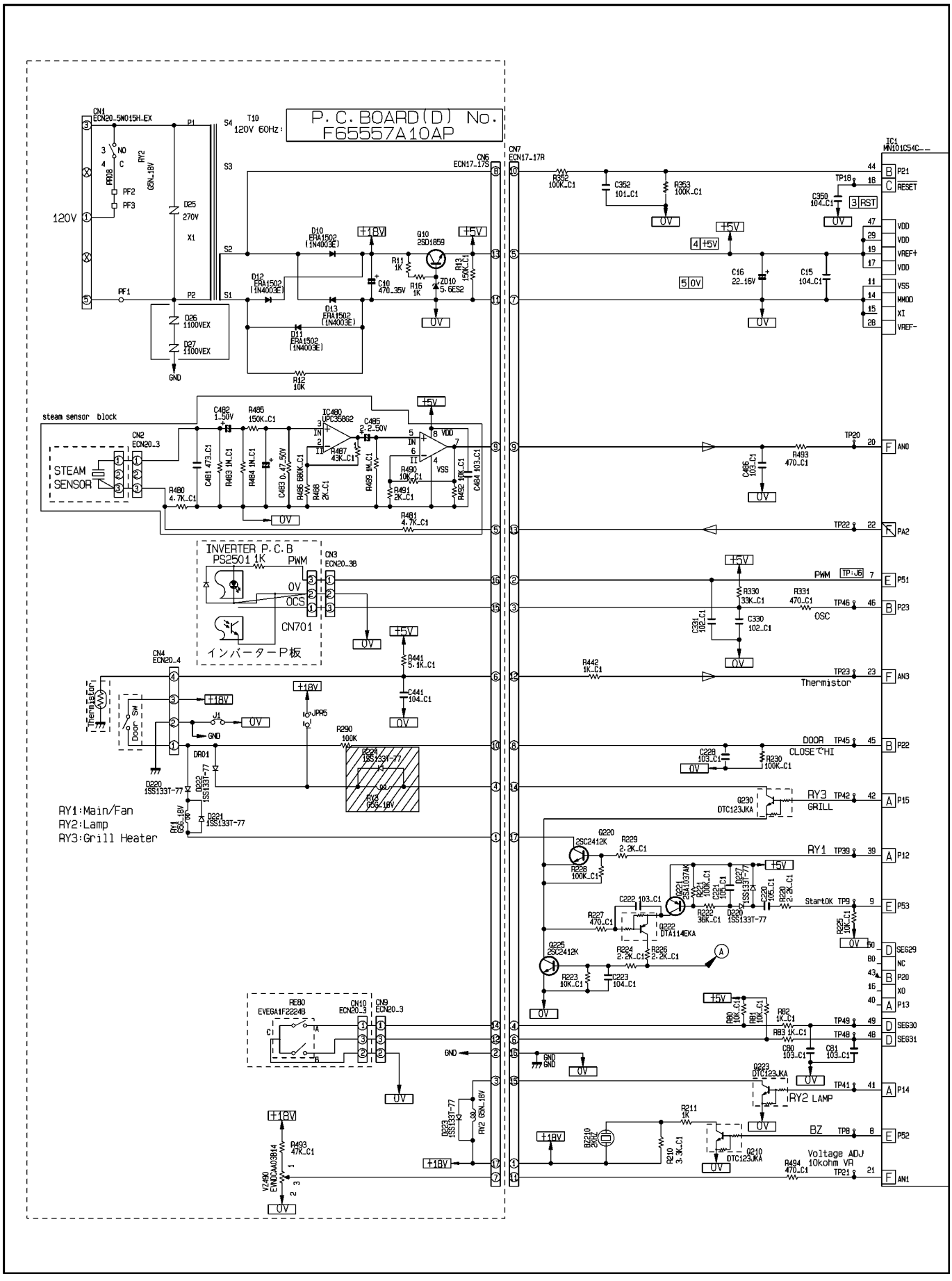
9.6. WIRING MATERIALS

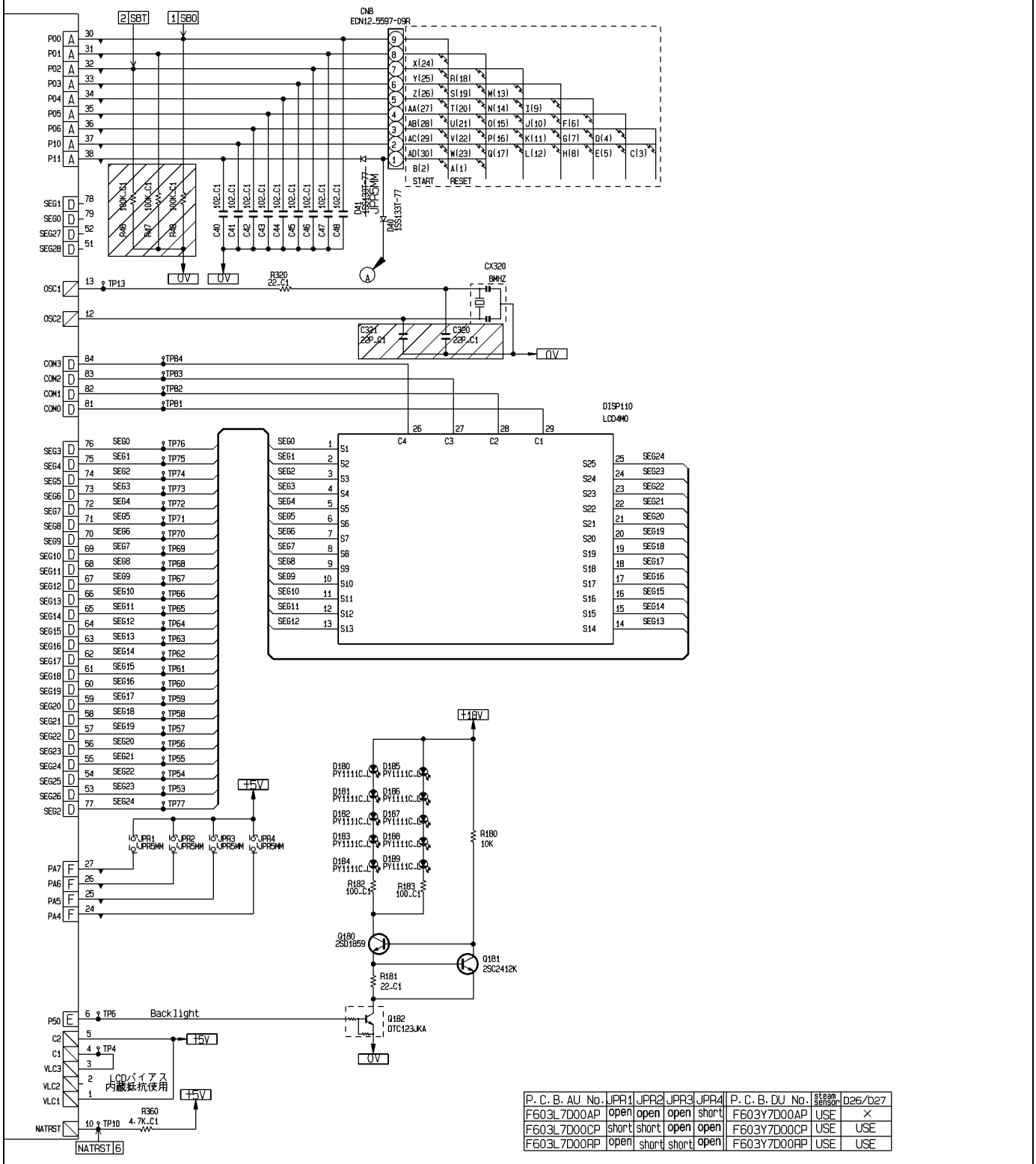


Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
W1		F030A7D00AP	LEAD WIRE HARNESS	1	APH
W1		F030A7D00CP	LEAD WIRE HARNESS	1	CPH
W1		F030A7D00RP	LEAD WIRE HARNESS	1	RPH
W2		F030E5L00AP	H.V.LEAD WIRE	1	APH,RPH
W2		F030E4T00CP	H.V.LEAD WIRE	1	CPH

10 DIGITAL PROGRAMMER CIRCUIT

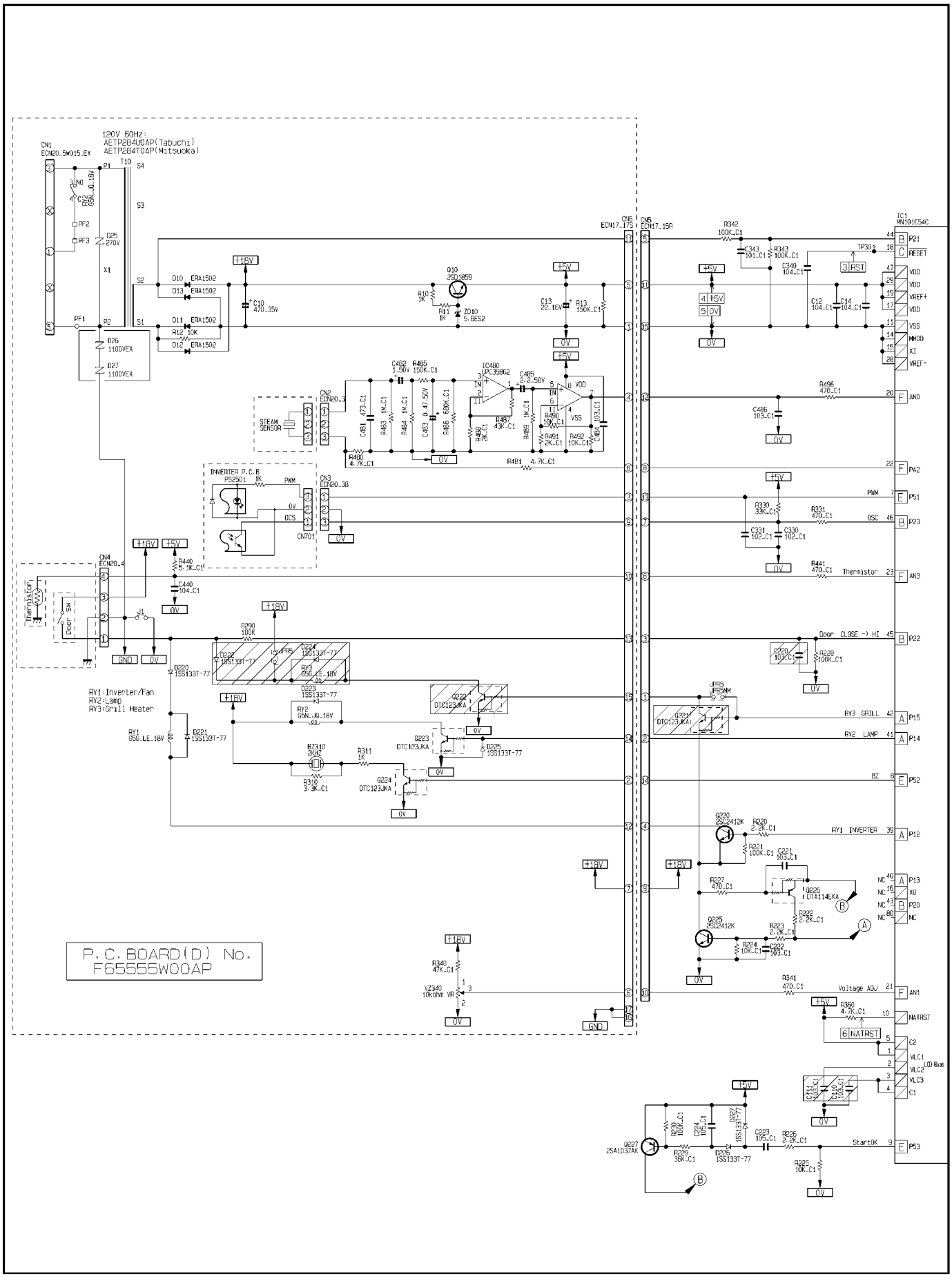
10.1. NN-T695SF APH/CPH, T695SF/SM RPH

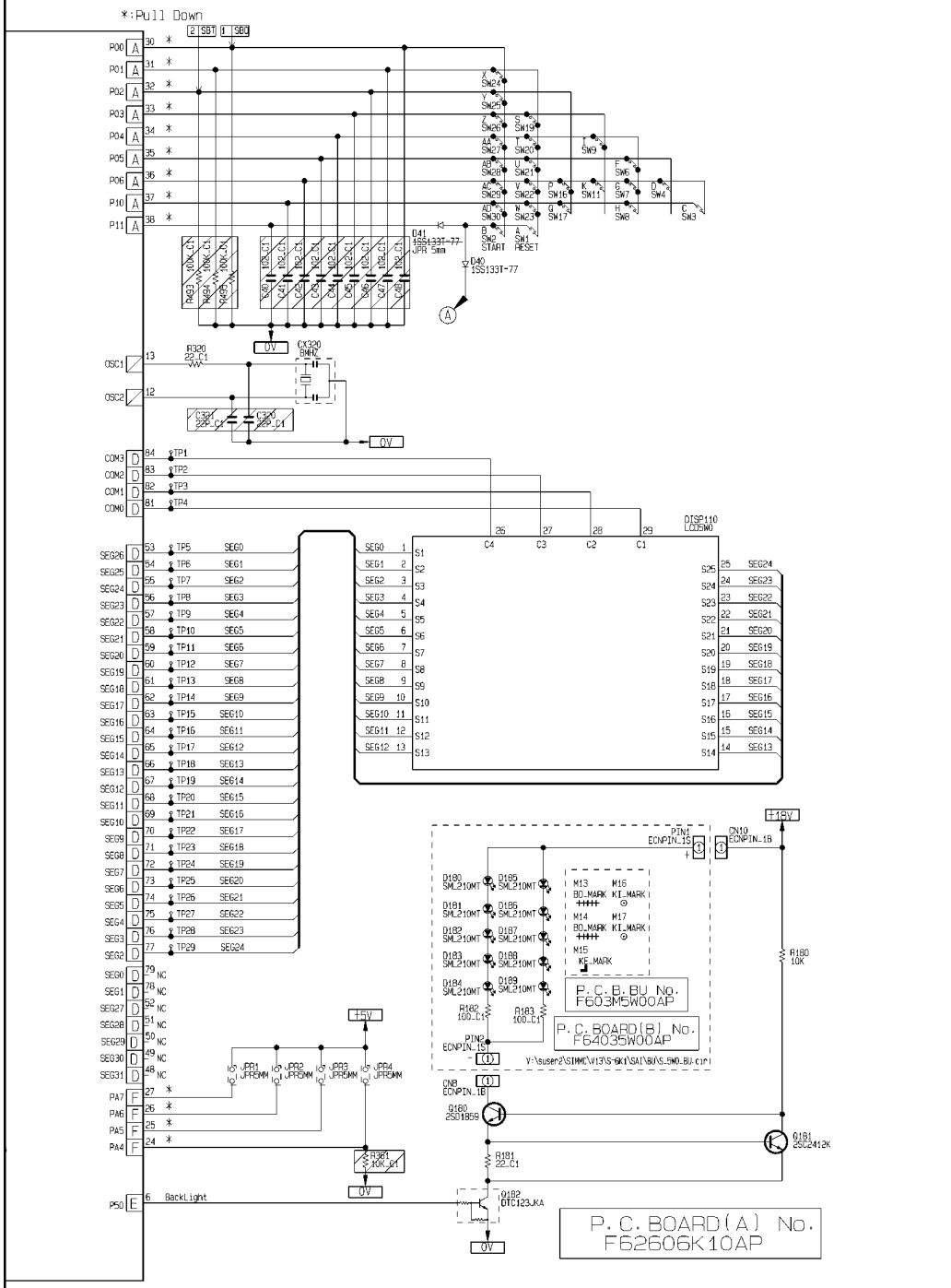




P.C.B.AU No.	JPR1	JPR2	JPR3	JPR4	P.C.B.DU No.	steam sensor	D26/D27
F603L7D00AP	open	open	open	short	F603Y7D00AP	USE	×
F603L7D00CP	short	short	open	open	F603Y7D00CP	USE	USE
F603L7D00RP	open	short	short	open	F603Y7D00RP	USE	USE

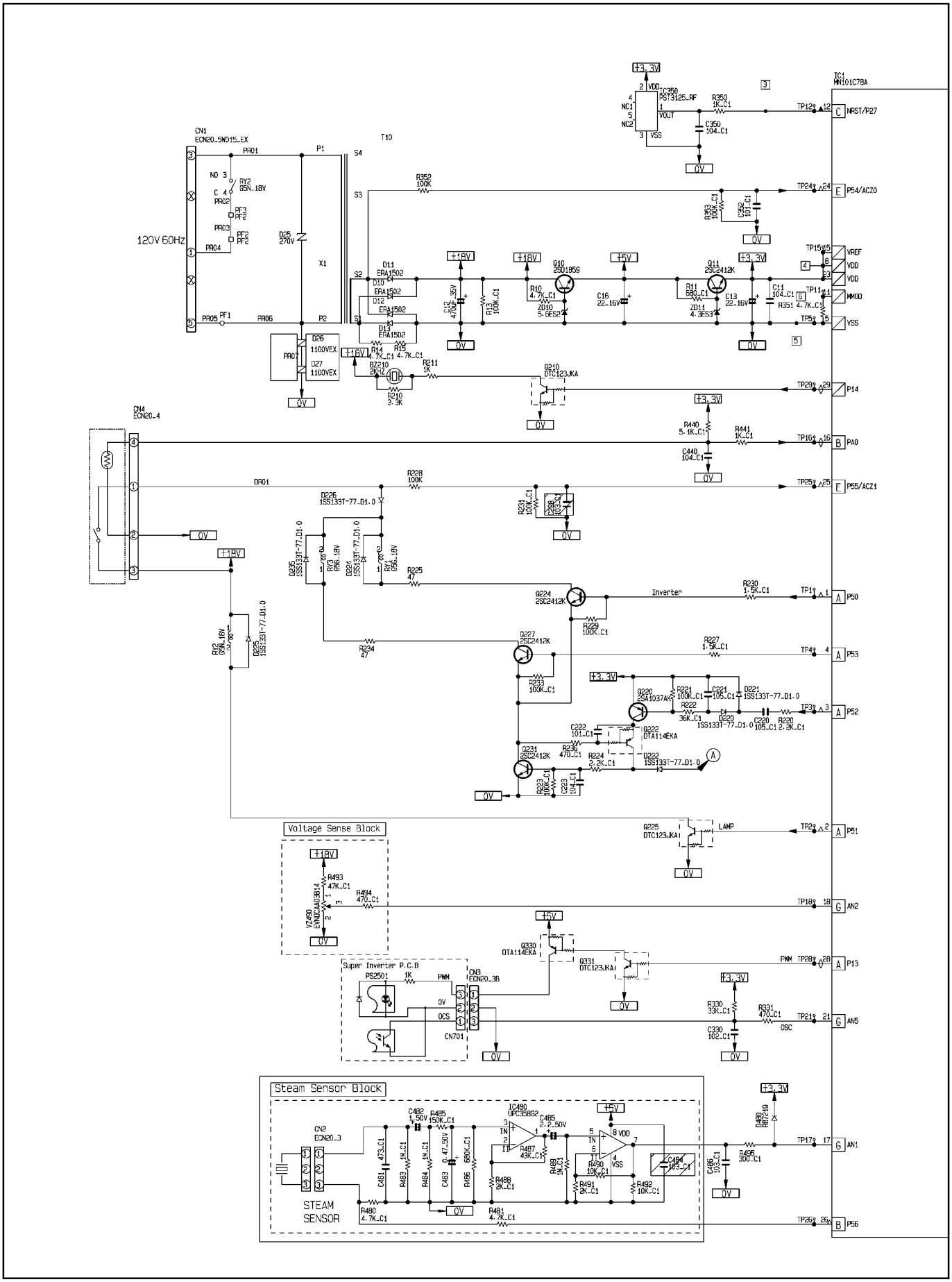
10.2. NN-T685SF APH/CPH, T675SF APH

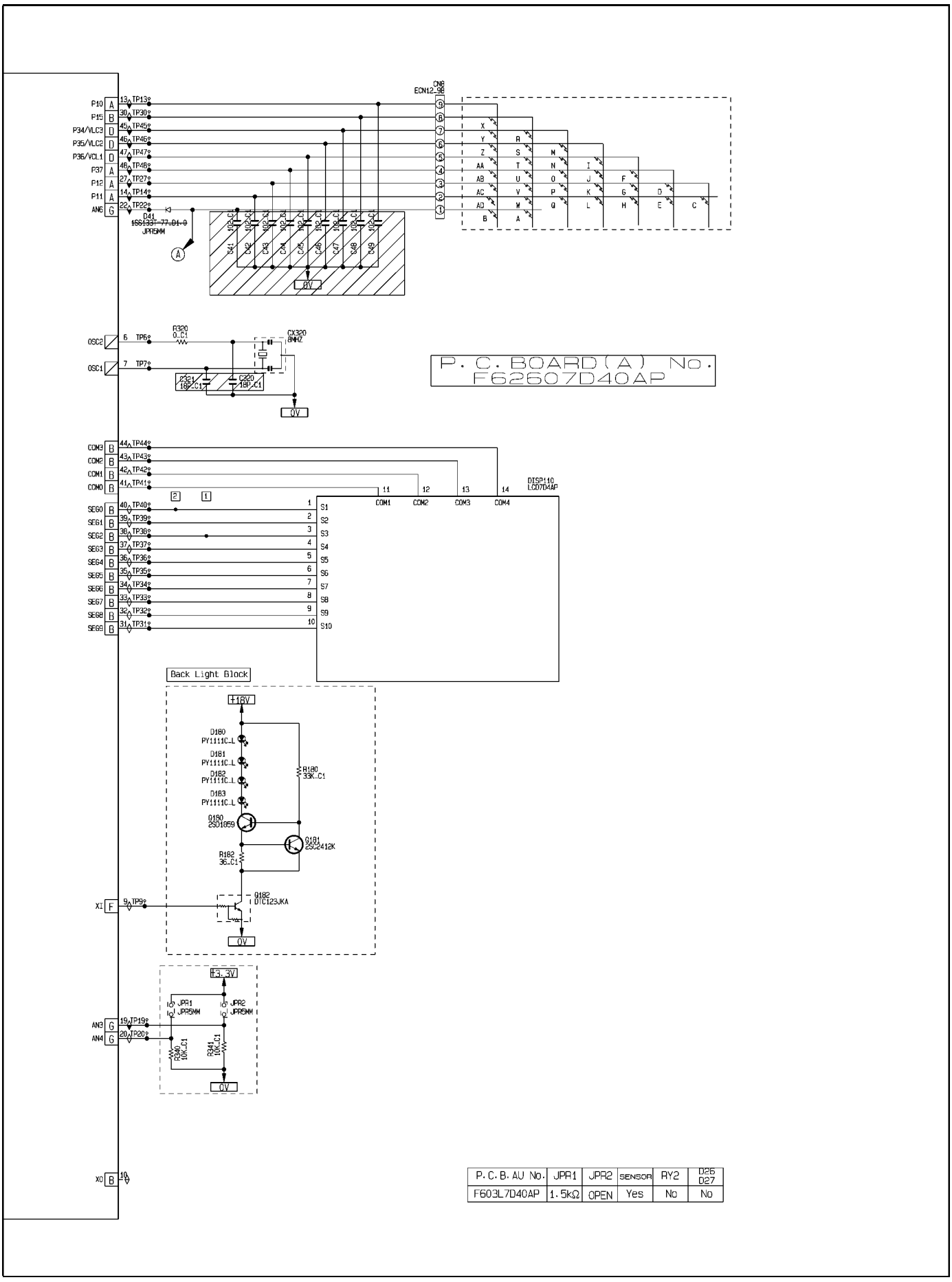




P.C.B.AU No.	JPR5	JPR4	JPR3	JPR2	JPR1	STEAM SENSOR	P.C.B BU No.	D26 D27
F603L7D10AP	OPEN	SHORT	SHORT	OPEN	SHORT	USE	F603Y6K10AP	✕
F603L7D10CP	OPEN	SHORT	SHORT	SHORT	OPEN	USE	F603L5W00CP	USE

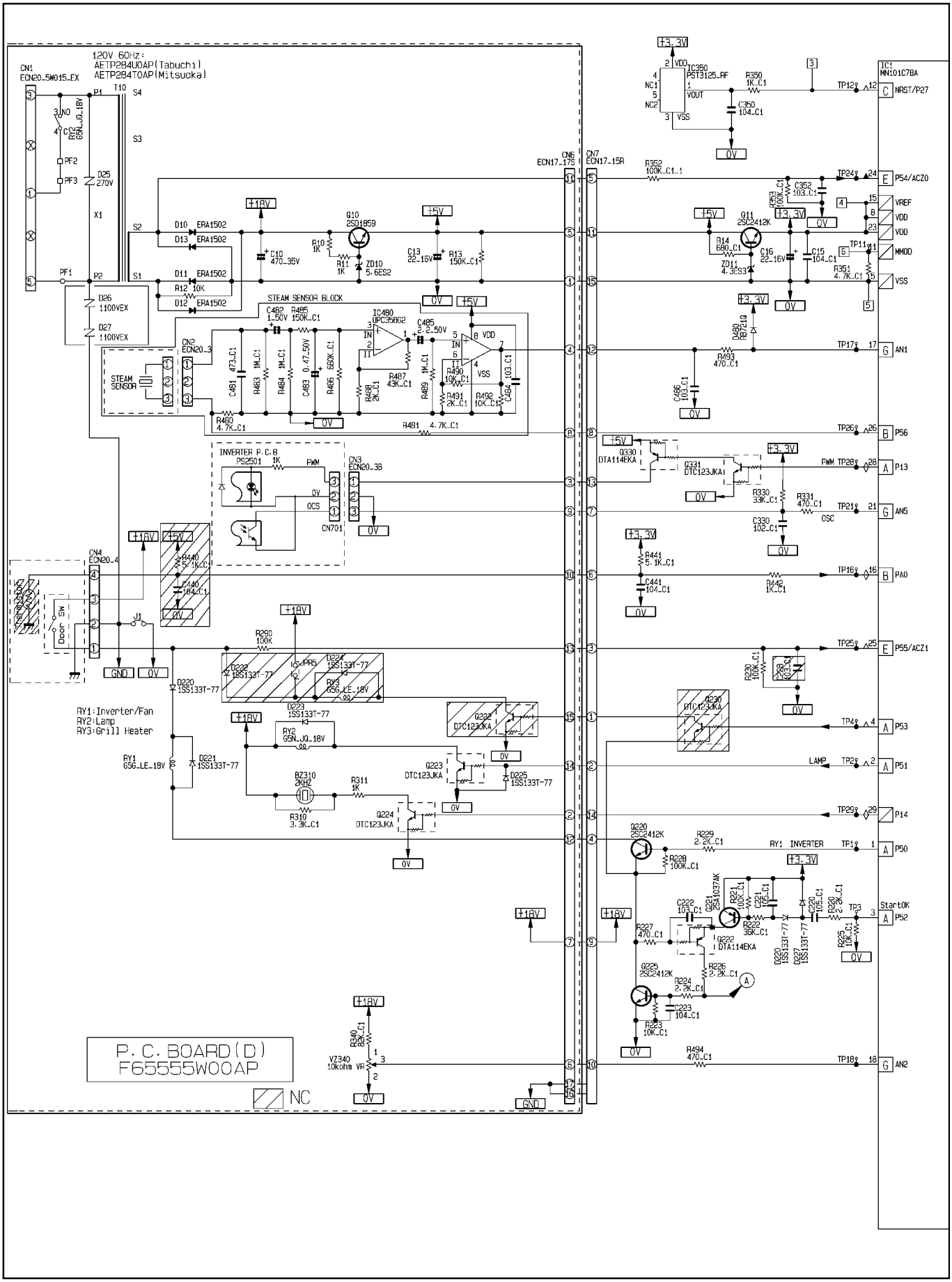
10.3. NN-T665SF APH, T655SF APH, T664SFR APH

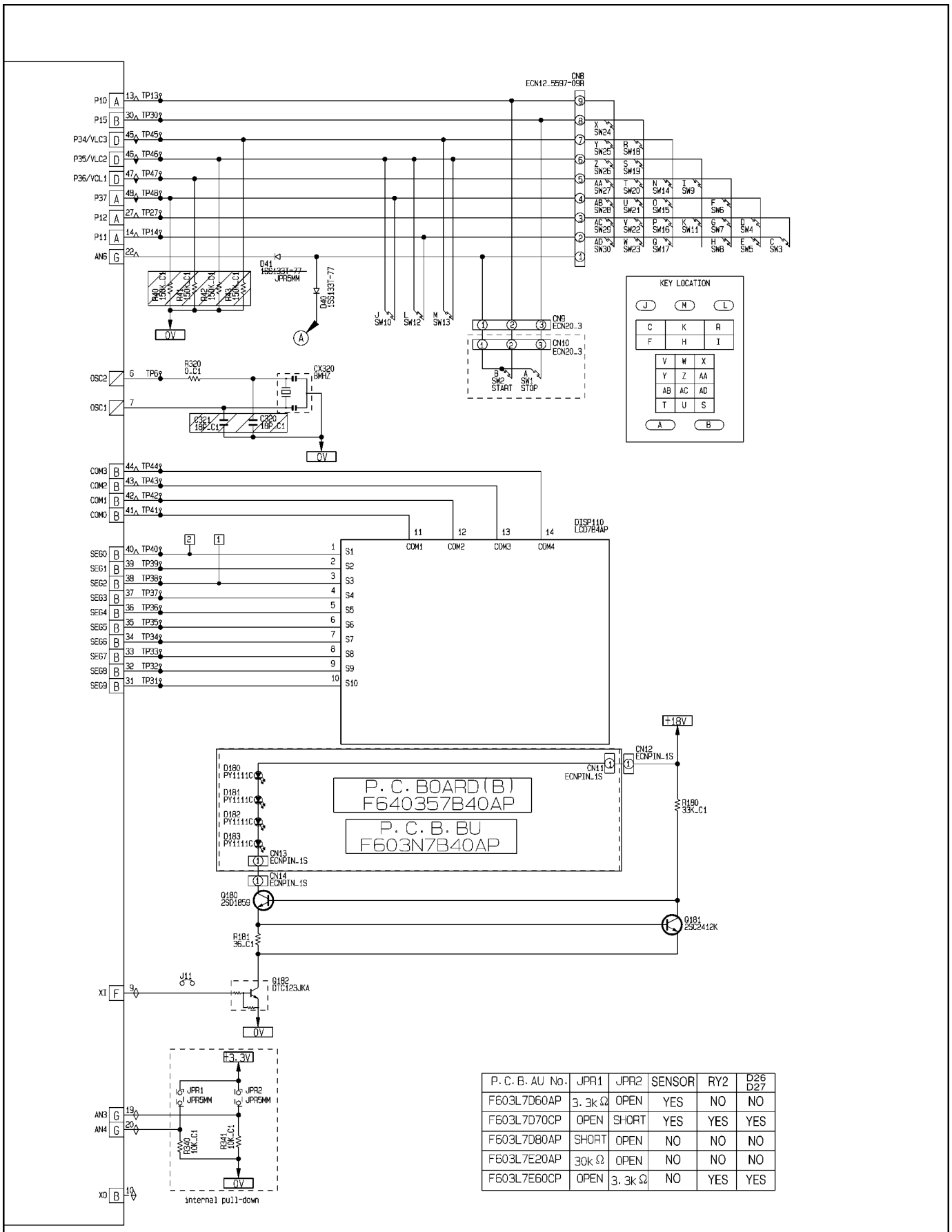




P. C. B. AU No.	JPR1	JPR2	SENSOR	RY2	D25 D27
F603L7D40AP	1.5kΩ	OPEN	Yes	No	No

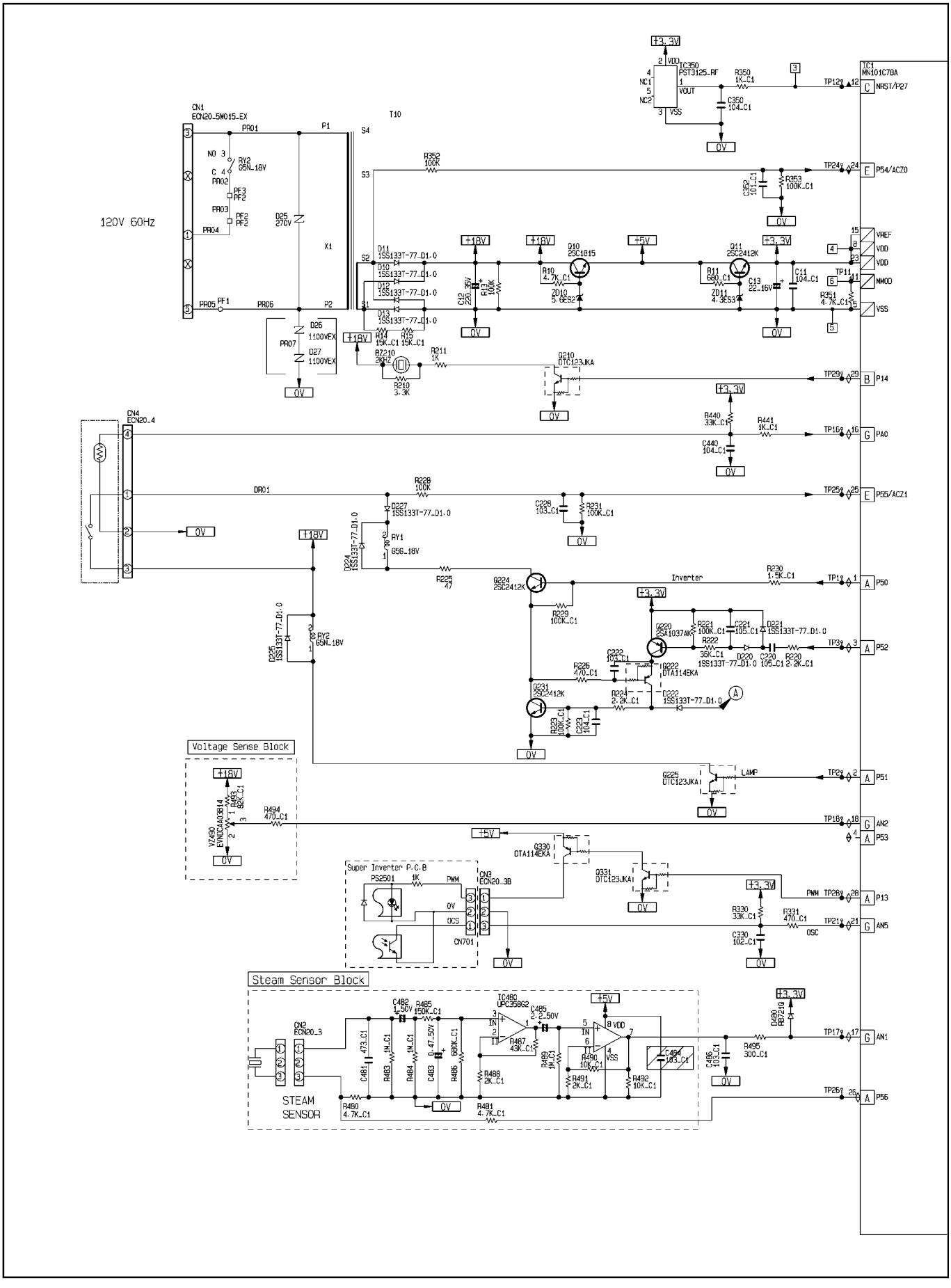
10.4. NN-H665 APH/CPH, H635 APH, S655 APH, S645 APH, S615 CPH

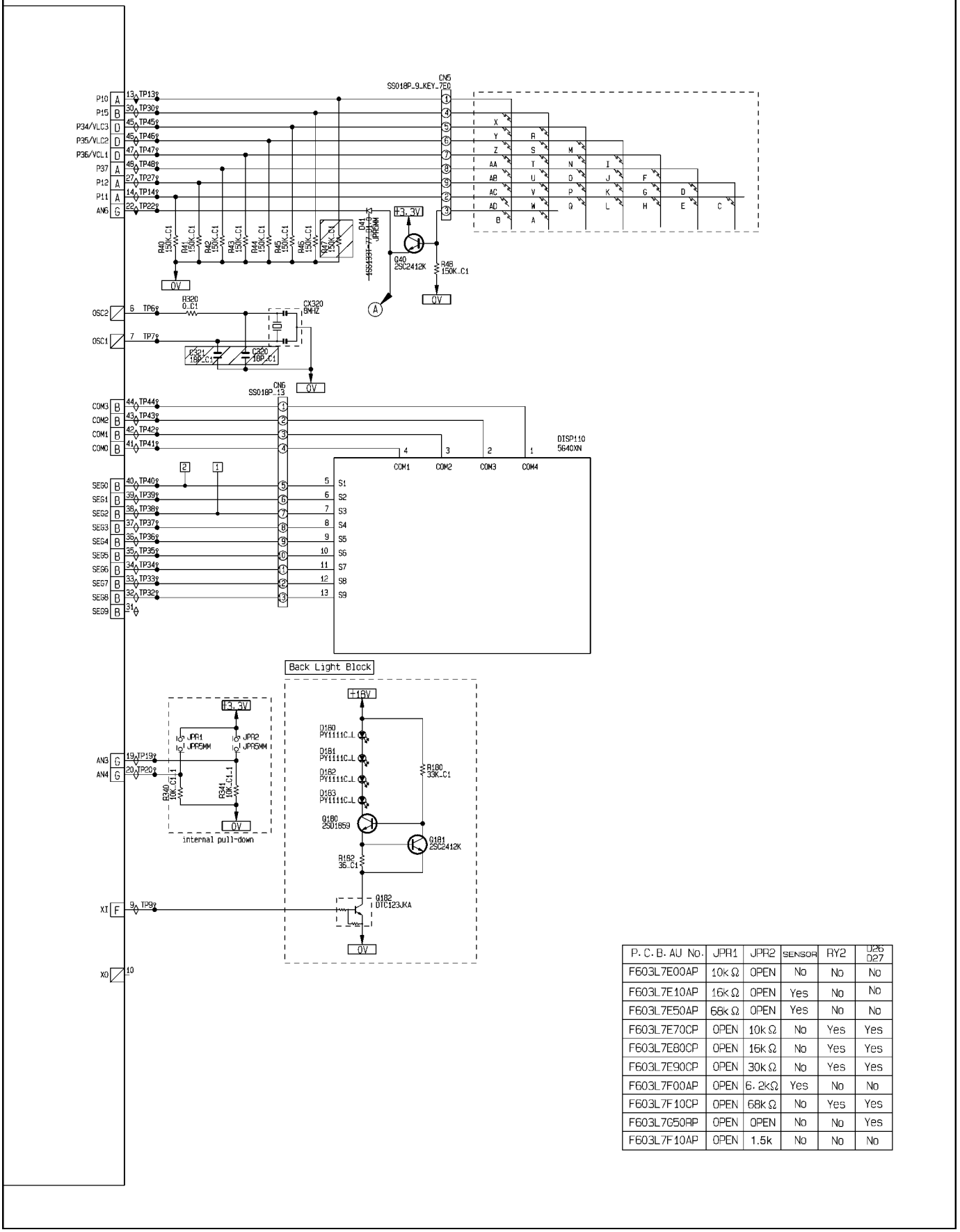




P. C. B. AU No.	JPR1	JPR2	SENSOR	RY2	D26 D27
F603L7D60AP	3.3k Ω	OPEN	YES	NO	NO
F603L7D70CP	OPEN	SHORT	YES	YES	YES
F603L7D80AP	SHORT	OPEN	NO	NO	NO
F603L7E20AP	30k Ω	OPEN	NO	NO	NO
F603L7E60CP	OPEN	3.3k Ω	NO	YES	YES

10.5. NN-H645 APH, S635 APH/CPH, H625 APH, S625 CPH, S605 CPH, S505 APH/CPH, S655 RPH, S645 RPH, H624*FR APH, H504*FR APH





P.C.B. AU No.	JPR1	JPR2	SENSOR	RY2	D26 D27
F603L7E00AP	10kΩ	OPEN	No	No	No
F603L7E10AP	16kΩ	OPEN	Yes	No	No
F603L7E50AP	68kΩ	OPEN	Yes	No	No
F603L7E70CP	OPEN	10kΩ	No	Yes	Yes
F603L7E80CP	OPEN	16kΩ	No	Yes	Yes
F603L7E90CP	OPEN	30kΩ	No	Yes	Yes
F603L7F00AP	OPEN	6.2kΩ	Yes	No	No
F603L7F10CP	OPEN	68kΩ	No	Yes	Yes
F603L7G50RP	OPEN	OPEN	No	No	Yes
F603L7F10AP	OPEN	1.5k	No	No	No

10.6. PARTS LIST

10.6.1. NN-T695SF APH/CPH, T695SF/SM RPH

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
BZ210		AEFBAT2001WQ	BUZZER	1	2.0KHz
C352		AECUU06C101J	CHIP CAPACITOR	1	100PF/50V
C40-C48,C330,C331		AECUU06R102K	CHIP CAPACITOR	11	1000PF/50V
C80,C81,C222,C228,C484,C486		AECUU06F103Z	CHIP CAPACITOR	6	0.01µF/50V
C481		AECUU06F473Z	CHIP CAPACITOR	1	0.047µF/50V
C15,C223,C350,C441		AECUT06F104Z	CHIP CAPACITOR	4	0.1µF/25V
C220,C221		AECUN06F105Z	CHIP CAPACITOR	2	1µF/10V
C10		AECETK1V471B	AL CHEM CAPACITOR	1	470µF/35V
C16		AECETS1C220B	AL CHEM CAPACITOR	1	22µF/16V
C482		AECETS1H010B	AL CHEM CAPACITOR	1	1µF/50V
C483		AECETS1HR47B	AL CHEM CAPACITOR	1	0.47µF/50V
C485		AECETS1H2R2B	AL CHEM CAPACITOR	1	2.2µF/50V
CN1		K1KA03AA0108	CONNECTOR	1	
CN2		K1KA03A00300	CONNECTOR	1	3 Pin
CN3		F03524U50AP	INV. HARNESS (U)	1	
CN4		K1KA04AA0086	CONNECTOR	1	
CN6		AEEM9604S17C	CONNECTOR	1	17 Pin
CN7		AEEM9604S17F	CONNECTOR	1	
CN8		K1MN09BA0072	CONNECTOR	1	
CN9		F03547B40AP	CONNECTOR	1	3 Pin
CX320		EFOEC8004A4	CERAMIC RESONATOR	1	8MHz
IC1		MN101C54CFY	L.S.I.	1	
IC480		C0ABBZ000017	IC	1	
DISP110		AEDDHJ4M00AP	LCD	1	
DISPL1		F66175E40XN	LCD HOLDER	1	
		F67525E40XN	DIFFUSION SHEET	1	
Q220,Q225		B1ABCF000010	CHIP TRANSISTOR	2	
Q221		B1ADCF000003	CHIP TRANSISTOR	1	
Q181		B1ABCF000010	CHIP TRANSISTOR	1	
Q182,Q210		B1GBCFEL0002	CHIP DIGI-TRANSISTOR	2	
Q222		B1GDCFJJ0002	CHIP DIGI-TRANSISTOR	1	
Q223		B1GBCFEL0002	CHIP DIGI-TRANSISTOR	1	(CPH)
Q10,Q180		B1BAAJ000003	TRANSISTOR	2	
D180-D189		AESQPY1112CK	CHIP-LED	10	
D40,D220-D223,D227		B0AACK000004	DIODE	6	
D10,D11,D12,D13		AESSRCT1A6-E	DIODE	4	
D25		AERZ271KSBN	VARISTOR	1	270V
D26,D27		AERZ102KSBN	VARISTOR	2	1000V (CPH,RPH)
R11,R16,R221		AERDY2TJ102T	CARBON FILM RESISTOR	3	1KΩ,1/4W,5%
R12,R180		AERDY2TJ103T	CARBON FILM RESISTOR	2	10KΩ,1/4W,5%
R290		AERDY2TJ104T	CARBON FILM RESISTOR	1	100KΩ,1/4W,5%
ZD10		B0BA5R600016	ZENER DIODE	1	
RY1		AEBGJQC25F18	POWER RELAY	1	
RY2		K6B1AZA00011	POWER RELAY	1	(CPH)
T10		AETP284T0AP	LOW VOLTAGE TRANSFORMER	1	
RE80		EVEJ1HF2224B	REVOLVING ENCODER	1	
VZ1		AEVNNV6TL103	VARISTOR	1	10KΩ

10.6.2. NN-T685SF APH/CPH, NN-T675SF APH

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
BZ310		AEFBAT2001WQ	BUZZER	1	2.0KHz
C343		AECUU06C101J	CHIP CAPACITOR	1	100PF/50V
C330,C331		AECUU06R102K	CHIP CAPACITOR	2	1000PF/50V
C221,C222,C486,C484		AECUU06F103Z	CHIP CAPACITOR	4	0.01µF/50V
C481		AECUU06F473Z	CHIP CAPACITOR	1	0.047µF/50V
C12,C340,C440		AECUT06F104Z	CHIP CAPACITOR	3	0.1µF/25V
C223,C224		AECUN06F105Z	CHIP CAPACITOR	2	1µF/10V
C10		AECETK1V471B	AL CHEM CAPACITOR	1	470µF/35V
C13		AECETS1C220B	AL CHEM CAPACITOR	1	22µF/16V
C482		AECETS1H010B	AL CHEM CAPACITOR	1	1µF/50V
C483		AECETS1HR47B	AL CHEM CAPACITOR	1	0.47µF/50V
C485		AECETS1H2R2B	AL CHEM CAPACITOR	1	2.2µF/50V
CN1		K1KA03AA0108	CONNECTOR	1	5 Pin
CN2		AEEMMF00703W	CONNECTOR	1	3 Pin
CN3		F03524U50AP	INV. HARNESS (U)	1	
CN4		K1KA04AA0086	CONNECTOR	1	
CN5		AEEM9604S15F	CONNECTOR	1	15 Pin
CN6		AEEM9604S15C	CONNECTOR	1	
PIN1,PIN2		AEPINIPS-1E7	PIN	2	
CX320		EFOEC8004A4	CERAMIC RESONATOR	1	8MHz
IC1		MN101C54CWT	L.S.I.	1	
IC480		C0ABBZ000017	IC	1	
DISP110		AEDDHJ5W00AP	LCD	1	
DISPL1		F66175W00AP	LCD HOLDER	1	
		F67525E40XN	DIFFUSION SHEET	1	
D180-D189		AESQPY1112H	CHIP-LED	10	
D220,D221,D225		B0AACK000004	DIODE	3	
D223		B0AACK000004	DIODE	1	(CPH)
D10,D11,D12,D13		AESSRCT1A6-E	DIODE	4	
D40,D226,D227		B0AACK000004	DIODE	3	
D25		AERZ271KD10N	VARISTOR	1	270V
D26,D27		AERZ102KD10N	VARISTOR	2	1100V (CPH)
Q224		B1GBCFEL0002	CHIP DIGI-TRANSISTOR	1	
Q223		B1GBCFEL0002	CHIP DIGI-TRANSISTOR	1	(CPH)
Q226		B1GDCFJJ0002	CHIP DIGI-TRANSISTOR	1	
Q182		B1GBCFEL0002	CHIP DIGI-TRANSISTOR	1	
Q181,Q220,Q225		B1ABCF000010	CHIP TRANSISTOR	3	
Q227		B1ADCF000003	CHIP TRANSISTOR	1	
Q10,Q180		B1BAAJ000003	TRANSISTOR	2	
R10,R11,R311		AERDY2TJ102T	CARBON FILM RESISTOR	3	1KΩ,1/4W,5%
R12,R180		AERDY2TJ103T	CARBON FILM RESISTOR	2	10KΩ,1/4W,5%
R290		AERDY2TJ104T	CARBON FILM RESISTOR	1	100KΩ,1/4W,5%
VZ340		AEVNNV6TL103	VARISTOR	1	10KΩ
RY1		AEBGJQC25F18	POWER RELAY	1	
RY2		K6B1AZA00011	POWER RELAY	1	(CPH)
ZD10		B0BA5R600016	ZENER DIODE	1	
T10		AETP284T0AP	LOW VOLTAGE TRANSFORMER	1	120V
SW1-SW4,SW6-SW9,SW11, SW16,SW17,SW19-SW30		EVQ11L05R	SWITCH	23	

10.6.3. NN-T665SF APH, T655SF APH, T664SFR APH

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
BZ210		AEFBAT2001WQ	BUZZER	1	2.0KHz
C352		AECUU06C101J	CHIP CAPACITOR	1	100PF/50V
C330		AECUU06R102K	CHIP CAPACITOR	1	1000PF/50V
C222,C486		AECUU06F103Z	CHIP CAPACITOR	2	0.01µF/50V
C481		AECUU06F473Z	CHIP CAPACITOR	1	0.047µF/50V
C11,C223,C350,C440		AECUT06F104Z	CHIP CAPACITOR	4	0.1µF/25V
C220,C221		AECUN06F105Z	CHIP CAPACITOR	2	1µF/10V
C12		AECETK1V471B	AL CHEM CAPACITOR	1	470µF/35V
C13,C16		AECETS1C220B	AL CHEM CAPACITOR	2	22µF/16V
C482		AECETS1H010B	AL CHEM CAPACITOR	1	1µF/50V
C483		AECETS1HR47B	AL CHEM CAPACITOR	1	0.47µF/50V
C485		AECETS1H2R2B	AL CHEM CAPACITOR	1	2.2µF/50V
CN1		K1KA03AA0108	CONNECTOR	1	
CN2		AEEMMF00703W	CONNECTOR	1	3 Pin
CN3		F03524U50AP	INV. HARNESS (U)	1	
CN4		K1KA04AA0086	CONNECTOR	1	
CX320		EFOEC8004A4	CERAMIC RESONATOR	1	8MHz
IC1		MN101C78ADD	L.S.I.	1	
IC350		C0EBE0000401	IC	1	
IC480		C0ABBZ000017	IC	1	
DISP110		AEDDHJ7D40AP	LCD	1	
DISPL1		F66174U20AP	LCD HOLDER	1	
Q220		B1ADCF000003	CHIP TRANSISTOR	1	
Q11,Q181,Q224,Q231		B1ABCF000010	CHIP TRANSISTOR	4	
Q182,Q210,Q331		B1GBCFEL0002	CHIP DIGI-TRANSISTOR	3	
Q222,Q330		B1GDCFJJ0002	CHIP DIGI-TRANSISTOR	2	
Q10,Q180		B1BAAJ000003	TRANSISTOR	2	
D180-D183		AESQPY1112CK	CHIP-LED	4	
D10,D11,D12,D13		AESSRCT1A6-E	DIODE	4	
D220-D222,D224,D227		B0AACK000004	DIODE	5	
D480		AEDNRB721Q	DIODE	1	
D25		AERZ271KSBN	VARISTOR	1	270V
R221		AERDY2TJ102T	CARBON FILM RESISTOR	1	1KΩ,1/4W,5%
R228,R352		AERDY2TJ104T	CARBON FILM RESISTOR	2	100KΩ,1/4W,5%
R225		AERDY2TJ470T	CARBON FILM RESISTOR	1	47Ω,1/4W,5%
ZD10		B0BA5R600016	ZENER DIODE	1	
ZD11		B0BA4R400002	ZENER DIODE	1	
RY1		AEBGJQC25F18	POWER RELAY	1	
T10		AETP284T0AP	LOW VOLTAGE TRANSFORMER	1	
VZ1		AEVNNV6TL103	VARISTOR	1	10KΩ

10.6.4. NN-H665 APH/CPH, H635 APH, S655 APH, S645 APH, S615 CPH

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
BZ310		AEFBAT2001WQ	BUZZER	1	2.0KHz
C352		AECUU06C101J	CHIP CAPACITOR	1	100PF/50V
C330		AECUU06R102K	CHIP CAPACITOR	1	1000PF/50V
C222		AECUU06F103Z	CHIP CAPACITOR	1	0.01µF/50V
C484,C486		AECUU06F103Z	CHIP CAPACITOR	2	0.01µF/50V (H6*5 APH/CPH)
C481		AECUU06F473Z	CHIP CAPACITOR	1	0.047µF/50V (H6*5 APH/CPH)
C15,C223,C350,C441		AECUT06F104Z	CHIP CAPACITOR	4	0.1µF/25V
C220,C221		AECUN06F105Z	CHIP CAPACITOR	2	1µF/10V
C10		AECETK1V471B	AL CHEM CAPACITOR	1	470µF/35V
C16		AECETS1C220B	AL CHEM CAPACITOR	1	22µF/16V
C482		AECETS1H010B	AL CHEM CAPACITOR	1	1µF/50V (H6*5 APH/CPH)
C483		AECETS1HR47B	AL CHEM CAPACITOR	1	0.47µF/50V (H6*5 APH/CPH)
C485		AECETS1H2R2B	AL CHEM CAPACITOR	1	2.2µF/50V (H6*5 APH/CPH)
C13		AECETS1C220B	AL CHEM CAPACITOR	1	22µF/16V
CN1		K1KA03AA0108	CONNECTOR	1	5Pin
CN2		AEEMMF00703W	CONNECTOR	1	3Pin (H6*5 APH/CPH)
CN4		K1KA04AA0086	CONNECTOR	1	
CN3		F03524U50AP	INV. HARNESS (U)	1	
CN6		AEEM9604S15C	CONNECTOR	1	
CN7		AEEM9604S15F	CONNECTOR	1	15 Pin
CN8		K1MN09BA0072	CONNECTOR	1	
CN9,CN10		F03547B40AP	CONNECTOR	2	3 Pin
CN13,CN14		AEPINIPS-1E7	PIN	2	
CX320		EFOEC8004A4	CERAMIC RESONATOR	1	8.0MHz
IC1		MN101C78ADD	L.S.I.	1	
IC350		C0EBE0000401	IC	1	
IC480		C0ABBZ000017	IC	1	(H6*5 APH/CPH)
DISP110		AEDDHJ7B40AP	LCD	1	
		F66177D60AP	LCD HOLDER	1	
Q221		B1ADCF000003	CHIP TRANSISTOR	1	
Q11,Q181,Q220,Q225		B1ABCF000010	CHIP TRANSISTOR	4	
Q222,Q330		B1GDCFJJ0002	CHIP DIGI-TRANSISTOR	2	
Q182,Q224,Q331		B1GBCFEL0002	CHIP DIGI-TRANSISTOR	3	
Q223		B1GBCFEL0002	CHIP DIGI-TRANSISTOR	1	(CPH)
Q10,Q180		B1BAAJ000003	TRANSISTOR	2	
D180-D183		AESQPY1112CK	CHIP-LED	4	
D40,D220,D221,D225,D227		B0AACK000004	DIODE	5	
D223		B0AACK000004	DIODE	1	(CPH)
D10,D11,D12,D13		AESSRCT1A6-E	DIODE	4	
D480		AEDNRB721Q	DIODE	1	(H6*5 APH/CPH)
D25		AERZ271KSBN	VARISTOR	1	270V
D26,D27		AERZ102KSBN	VARISTOR	2	1100V (CPH)
R10,R11,R44,R311		AERDY2TJ102T	CARBON FILM RESISTOR	4	1KΩ,1/4,5%
R12		AERDY2TJ103T	CARBON FILM RESISTOR	1	10KΩ,1/4,5%
R290		AERDY2TJ104T	CARBON FILM RESISTOR	1	100KΩ,1/4,5%
ZD10		B0BA5R600016	ZENER DIODE	1	
ZD11		B0BA4R400002	ZENER DIODE	1	
RY1		AEBGJQC25F18	POWER RELAY	1	
RY2		K6B1AZA00011	POWER RELAY	1	(CPH)
T10		AETP284T0AP	LOW VOLTAGE TRANSFORMER	1	120V
VZ340		AEVNNV6TL103	VARISTOR	1	10KΩ
SW1,SW2,SW10,SW12,SW13		EVQ11L05R	SWITCH	5	

10.6.5. NN-H645 APH, S635 APH/CPH, H625 APH, S625 CPH, S605 CPH, S505 APH/CPH, S655 RPH, S645 RPH, H624*FR APH, H504*FR APH

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
BZ210		AEFBAT2001WQ	BUZZER	1	2.0KHz
C352		AECUU06C101J	CHIP CAPACITOR	1	100PF/50V
C330		AECUU06R102K	CHIP CAPACITOR	1	1000PF/50V
C222,C228		AECUU06F103Z	CHIP CAPACITOR	2	0.01µF/50V
C486		AECUU06F103Z	CHIP CAPACITOR	1	0.01µF/50V (H6*5 APH,H624 *FR APH,H504*FR APH)
C481		AECUU06F473Z	CHIP CAPACITOR	1	0.047µF/50V (H6*5 APH,H624 *FR APH,H504*FR APH)
C11,C223,C350,C440		AECUT06F104Z	CHIP CAPACITOR	4	0.1µF/25V
C220,C221		AECUN06F105Z	CHIP CAPACITOR	2	1µF/10V
C12		AECETK1V471B	AL CHEM CAPACITOR	1	470µF/35V
C13		AECETS1C220B	AL CHEM CAPACITOR	1	22µF/16V
C482		AECETS1H010B	AL CHEM CAPACITOR	1	1µF/50V (H6*5 APH,H624*F R APH,H504*FR APH)
C483		AECETS1HR47B	AL CHEM CAPACITOR	1	0.47µF/50V (H6*5 APH,H624*F R APH,H504*FR APH)
C485		AECETS1H2R2B	AL CHEM CAPACITOR	1	2.2µF/50V (H6*5 APH,H624*F R APH,H504*FR APH)
CN1		K1KA03AA0108	CONNECTOR	1	
CN2		AEEMMF00703W	CONNECTOR	1	3 Pin (H6*5 APH,H624*FR APH,H504*FR APH)
CN3		F03524U50AP	INV. HARNESS (U)	1	
CN4		K1KA04AA0086	CONNECTOR	1	
CX320		EFOEC8004A4	CERAMIC RESONATOR	1	8MHz
IC1		MN101C78ADD	L.S.I.	1	
IC350		C0EBE0000401	IC	1	
IC480		C0ABBZ000017	IC	1	(H6*5 APH,H624*F R APH,H504*FR APH)
Q220		B1ADCF000003	CHIP TRANSISTOR	1	
Q11,Q40,Q181,Q224,Q231		B1ABCF000010	CHIP TRANSISTOR	5	
Q222,Q330		B1GDCFJJ0002	CHIP DIGI-TRANSISTOR	2	
Q182,Q210,Q331		B1GBCFEL0002	CHIP DIGI-TRANSISTOR	3	
Q225		B1GBCFEL0002	CHIP DIGI-TRANSISTOR	1	(CPH)
Q10,Q180		B1BAAJ000003	TRANSISTOR	2	
D180-D183		AESQPY1112CK	CHIP-LED	4	
D220-D222,D224,D227		B0AACK000004	DIODE	5	
D225		B0AACK000004	DIODE	1	(CPH)
D10,D11,D12,D13		AESSRCT1A6-E	DIODE	4	
D480		AEDNRB721Q	DIODE	1	(H6*5 APH,H624*FR APH,H504*FR APH)
D25		AERZ271KSBN	VARISTOR	1	270V
D26,D27		AERZ102KSBN	VARISTOR	2	1100V (CPH,RPH)
R225		AERDY2TJ470T	CARBON FILM RESISTOR	1	47Ω,1/4W,5%
R226		AERDY2TJ471T	CARBON FILM RESISTOR	1	470Ω,1/4W,5%
ZD10		B0BA5R600016	ZENER DIODE	1	
ZD11		B0BA4R400002	ZENER DIODE	1	
RY1		AEBGJQC25F18	POWER RELAY	1	
RY2		K6B1AZA00011	POWER RELAY	1	(CPH)
T10		AETP284T0AP	LOW VOLTAGE TRANSFORMER	1	
VZ1		AEVNNV6TL103	VARISTOR	1	10KΩ

01/05
S-7D0, S-7D1
S-7D3, S-7D4
S-7D5, S-7D6
S-7D8, S-7D9
S-7E0, S-7E1
S-7E2, S-7E5
S-7E6, S-7E7
S-7E8, S-7E9
S-7F0, S-7F1
S-7F5, S-7G4
S-7G5, S-7G6
S-6Z4, S-6Z5
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